

THE MILITARY SURGEON

Vol. 80

JANUARY, 1937

No. 1

ORIGINAL ARTICLES

Authors alone are responsible for opinions expressed in their contributions

THE CENTENARY OF THE ARMY MEDICAL LIBRARY

By THE LIBRARIAN

COLONEL HAROLD W. JONES, M.C., *U. S. Army*

ON THE evening of November 16, 1936, there was celebrated an event of more than usual significance in the life of a famous medical library, for on that date the Army Medical Library joined the company of those worthies who have survived to enter upon their second hundred years.

Born of an inspiration with but a mere handful of books for dower during the administration of President Jackson, and more than probably quite unnoticed by him, this frail child grew into vigorous maturity fifty years ago under the immortal Billings. Today the Institution is but entering into the fullness of its powers, and at the celebration the many friends and well wishers from all parts of the world sent messages by the hundreds and came to render homage with a warmth of feeling which Time will not efface.

The entire Library Hall had been cleared for the occasion and seats for more than five hundred persons had been provided. Invitations to more than thirteen hundred institutions of learning, libraries and individuals had been sent out. The hall was decorated with the flags of all nations, the platform covered with Chinese rugs and bedecked with palms and British and American flags. Upon the walls hung two score of portraits of former Surgeon Generals as well as men of note in medicine, men who have made the Library what it is today. Surgeon General Joseph Lovell looked down upon the scene from the east wall for he it was who founded the Library. Over the platform hung the dominating portrait of Billings, largest in the gallery, while across the hall the genial Fletcher gazed at his old friend as if to say, to paraphrase Osler, "Well, we're still working together!"

The Army band was in attendance. On the walls were hundreds of greetings from almost every country in the world. Diplomas of honor



THE LIBRARY HALL

The audience hearing the Oration by Sir Humphrey Davy Rolleston.

from institutions of learning were everywhere in frames for all to see, and as the meeting was called to order an ambassador, a minister of state, two former surgeon generals, and a British physician widely celebrated for his attainments in medicine and in medical history, looked upon such an assemblage of guests noted in bibliography and medical and library science as is seldom beheld.

THE PROCEEDINGS

The Librarian in the chair

The Invocation by the Reverend Oliver J. Hart, D.D. of St. John's Episcopal Church, Washington, D. C.

The Chairman:

General Reynolds, Sir Humphry Rolleston, representatives of learned institutions from many countries and many states, honored guests from far and near. The opportunity of addressing so distinguished a gathering as is here tonight comes but rarely in anyone's lifetime, and as this meeting opens, all those of us who have planned and awaited it must indeed be conscious of a feeling of exaltation that this most important event in the history of the Army Medical Library has come to be

recognized in a manner so eminently fitting. From a small collection of books housed in 1836 within a single room upon a street as yet innocent of paving, the Library has now grown until it owns to near a million items, and in its Index Catalogue, now in the sixth decade, it has listed more than three million references, to the great betterment of the medical world. It has a collection of rare medical books and manuscripts of surpassing merit. It has a glorious tradition, an absorbing present, and an abiding faith in its future—it indeed has but one serious worry—it has outgrown the building dedicated half a century ago.

At this time, ladies and gentlemen, I have the pleasure of reading to you a gracious message from one whom we would have been delighted to honor but who could not be present tonight—The President of the United States.

THE WHITE HOUSE
Washington

November 10, 1936

MY DEAR GENERAL REYNOLDS:

I regret that I shall be unable to be present on the evening of November sixteenth at exercises in commemoration of the one hundredth anniversary of the founding of the Army Medical Library.

The years that span the period from the founding of the Library to the present have witnessed profound development in the practice of the art of healing. And during that century the Army Medical Library has attained a position of first rank among the scientific libraries of the world, and has become, I am glad to know, a veritable storehouse of medical learning. Its treasures, I am informed, are available to and are consulted by seekers after truth not only from our own country but from other and far away lands.

I send my hearty felicitations and warm personal greetings to all who gather for the centennial celebration. I trust that as the years pass the Library will grow in the accumulation of its treasures and that its rich resources always will be available to all who work for the betterment of mankind through the prevention of disease and the alleviation of human suffering.

Very sincerely yours,
FRANKLIN D. ROOSEVELT

*Major General C. R. Reynolds, U. S. A.,
The Surgeon General,
War Department,
Washington, D. C.*

And now, ladies and gentlemen, it is my happy privilege to introduce to you your host of this evening. Throughout his distinguished career, from his earliest days in the Army even, as I can well remember, he has manifested a lively interest in the Army Medical Library. I have the honor to present to you Major General Charles R. Reynolds, the Surgeon General of the Army.

General Reynolds:

Sir Humphry and Friends of the Library: It is a pleasure to greet and extend a cordial welcome to you who have assembled to commemorate the one hundredth anniversary of the founding of the Army Medical Library. It is also my privilege to acknowledge the cordial sentiments expressed by libraries and other institutions of this country and throughout practically the entire world, many of which have sent personal representatives to attend this meeting.

The hundred years spanning the life of this Library comprise the era during which most of the great advances in medicine have been made. Empirical medicine changed to scientific medicine during this time. It is the era that gave us anesthesia and then our knowledge of bacteriology with its profound effect upon medical science. It demonstrated the actual causation of many infectious diseases, rationalized our therapeutics and gave us specific therapy. Then opened the wide fields of aseptic surgery, preventive medicine, and public health administration. During this time we learned not only of bacteria but of many animal parasites and the role of insects in the transmission of disease. Along with these or following them, came the alliance of physiology with the more exact sciences, particularly chemistry, and the discovery of the roentgen ray and radium. The medical profession probably contributed more to humanity during this time than throughout the previous centuries of civilization.

Fortunately, the Library had its birth in the dawn of this era and was able to record the literature of this rich period. Those whose vision and labor established and developed this Library have made it a depository or treasure house of classified medical information available to students of medicine throughout the world.

Destiny dealt kindly with human welfare when it raised up John Shaw Billings who more than any other man is responsible for this Library and its Index Catalogue. To borrow words said by Washington Irving of the royal poet of Scotland, Billings has embalmed his memory in the hearts of students of medicine and floated his name down to after ages in the rich stream of medical literature. His disciples, each an officer of the Regular Army Medical Corps, have carried on the work as librarians in a commendable way right down to the present time. The Army Medical Library is the most precious possession of the Medical Department of the Army, if indeed we can claim ownership of something that really belongs to medicine rather than to individuals or associations. If there is anything sacred to the Medical Department besides its essential honor and sense of duty, it is its stewardship of the Army Medical Library.

He who will address you tonight is a great physician and a great author. His presence emphasizes the importance of this Library and its worldwide usefulness. Physician to King George V, Professor of Physic at Cambridge, formerly President of the Royal College of Physicians and of the Royal Society of Medicine, Surgeon Rear Admiral of the Royal Navy, and withal a great friend of the Army Medical Library, I have the honor to present Sir Humphry Davy Rolleston.

THE ORATION COMMEMORATING THE ONE HUNDREDTH
ANNIVERSARY OF THE FOUNDING OF THE ARMY
MEDICAL LIBRARY, WASHINGTON

By SIR HUMPHRY DAVY ROLLESTON, BART., *G.C.V.O., K.C.B., M.D.,
Emeritus Regius Professor of Physic, University of Cambridge. Sometime
President Royal College of Physicians of London*

IT IS a very high honour and a most pleasant privilege to assist at the Centennial of the conception of the Library of the Surgeon-General's Office, United States Army, now containing more than a million items and the largest Medical Library in the world. Virchow and later George Adami (1914) described the Index Catalogue and the Index Medicus as America's greatest gift to medicine, and in his admirable paper "The Centennial of the World's Largest Medical Library: The Army Medical Library of Washington," from which I have freely drawn, Major Edgar Erskine Hume, lately Librarian, tells us that Professor William H. Welch not only expressed a similar considered opinion in 1921, but at his last visit to the Library placed it above America's services in connexion with anaesthesia, the insect transmission of disease, and the development of Public Health Laboratories.

The phenomenal transformation of Medicine in America during the last twenty years of "the nineteenth century and after" was due to several causes: among others to the men of Billings' generation, especially Welch and Osler, to the example set by the Johns Hopkins University and Hospital, to the Library of the Surgeon-General's Office, its Index Catalogue and the Index Medicus. Of these the Johns Hopkins Hospital, the Library, its Index Catalogue, and the Index Medicus were largely the offspring of Billings' energetic initiative.

LIBRARIES

Libraries and Museums are important instruments in medical education and progress. They resemble each other as reservoirs of sound learning gathered from practical experience. This correlation of knowledge, shown by the oldest scientific museum in Great Britain—the Ashmolean Museum (1679) at Oxford—which was under the same roof as the library of natural history and philosophy, and also a century later by the original British Museum (1754) in Bloomsbury, the Natural History part of the Museum being moved to South Kensington and opened in 1881, was confirmed, as regards medicine, by the Army Medical Museum which contains the Army Medical Library.

The relative importance attached to medical libraries and mu-

seums, has varied to some extent from time to time, no doubt depending on the enthusiasm and driving power of prominent persons. Physicians have usually turned more to libraries, and surgeons done more for museums; this is not a rigid rule, but rarely has the same man whole-heartedly and equally promoted them both. Such, however, were the physicians Sir Hans Sloane (1660-1753) President of the Royal Society and of the Royal College of Physicians of London, whose collections of natural history, articles of virtu (69,352), books (50,000), and valuable manuscripts formed the nucleus of the British Museum, and Sir William Osler (1849-1919) whose generosity to many libraries, especially to his *alma mater*, Montreal, and advocacy of medical museums are known to all.

It is surely quite unnecessary to preach to the converted on the value and inspiring influence of medical libraries, for this has been so conclusively set forth by Billings, by Oliver Wendell Holmes (1809-94) at the first opening of the Boston Medical Library in 1878, by Osler in "Books and Men," also at the Boston Medical Library when a new building was opened in 1901, and in 1926 at Cleveland in the charming address "The Doctor and His Books" by Professor Harvey Cushing, Osler's greatest pupil, who could so convincingly have shown here and now, how well that tradition has been maintained.

THE ARMY MEDICAL LIBRARY

The layman in the street might be puzzled to explain why and how it came about that the Surgeon-General of an Army, however great, should have such a library as this attached to his office; for such offices are usually devoted more to active organization and orders than to medical bibliography ancient or modern. The answer, clear to everyone here, is the personality of John Shaw Billings of the Surgeon-General's Office and the creator of its library, who looks down on us tonight. Originally a small collection of reference books for the use of the Surgeon-General (Joseph Lovell) in his office at Washington (according to Billings (1880) some time before 1836) it long remained in a state of suspended animation. In 1840 a manuscript catalogue listed 135 works (228 volumes); at the outbreak of the Civil War (1861) the number of volumes was between three and four hundred; on May 10, 1864, seven and a half months before Billings came on the scene as the first person to be in any way (for he was only nominally not officially) responsible for the books, a printed catalogue showed a total of 1365 volumes; in another printed catalogue dated October 23, 1865 the number had risen to 2258. Growth then became rapid;

in 1868 the sum of eighty thousand dollars left over from the Funds of Civil War hospitals was made available for the library, Billings being given discretionary powers; and on June 12th of that year a printed catalogue referred to 6066 volumes, showing that Billings had not lost any time in building up the Library. In 1876 the Library contained forty thousand volumes and as many pamphlets, and in 1895 when he retired the number had increased to 308,445.

Besides books, pamphlets, the valuable collections of 460 out of the estimated 600 medical incunabula (books printed before 1500), and a collection of Paris theses unrivalled even in their native city, the Library has nine thousand portraits of medical men, and a collection of medical autographs to which Abraham Jacobi and Garrison made generous contributions. The Army Medical Library has stimulated fruitful imitation, which charitably began at home, for in 1929 there were 200 medical libraries in the United States as compared with 118 in Europe (Garrison).

From 1865 to 1887 the Army Medical Museum, not a fire-proof building, which contained the Library, occupied the old Ford's theatre in which Abraham Lincoln had been assassinated on April 14, 1865. This soon became quite inadequate, and Billings rising to the occasion obtained funds, Congress appropriating two hundred thousand dollars, for the construction, according to his plans, of the present home of the Army Medical Museum, of which he was also curator, and of the library at the corner of Seventh street and B street (now Independence avenue). This was successfully carried through in time to receive in 1887 the ninth International Medical Congress held at Washington.

History repeats itself, and the Army Medical Museum (up till 1922 always called the Library of the Surgeon-General's Office) has now, as happens sooner or later to all active libraries, been faced for some time with the impossibility of further expansion on its present site which indeed is now wanted for the further development of Washington (Reynolds). What better way of celebrating the commencement of the second century of the Library could there be than the erection of a new building so urgently needed and so thoroughly deserved?

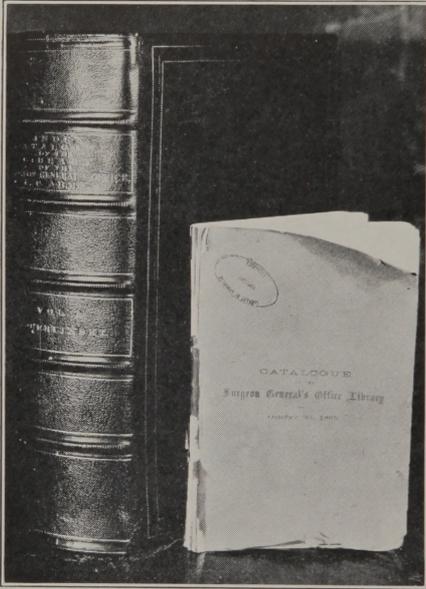
THE INDEX CATALOGUE OF THE LIBRARY OF THE
SURGEON-GENERAL'S OFFICE

A Library is obviously an essential factor in the preservation of knowledge and history. It, however, has been pessimistically described as a mausoleum where knowledge lies dead and mummified; this may be a real danger unless the Library is activated and kept alive by a

guide to its contents. It is not complete without a good catalogue, namely one with the double entry of author and subject. It is obvious that the larger the Library, the more fully will such a catalogue afford access to existing knowledge, especially when printed and distributed widely to other libraries. The Army Medical Library is the largest of its kind, and more current periodicals are devoted to medicine than to

any other branch of science. As long ago as 1887 it received annually 700 medical periodicals exclusive of those devoted to pharmacy and to dentistry. Since then they have multiplied and now amount to 2000. The bibliographical scope of the Index Catalogue is therefore world-wide, and the universal appreciation of its help is graphically shown by the worn state of the original bindings, or by new bindings, of its volumes in medical libraries.

How does the Index Catalogue compare with previous medical bibliographies which Osler (1913) optimistically described as the best "float through posterity," for the authors? There have been many valuable medical bibliographies



The catalogue of 1865, twenty-four pages, compared with the first volume of the Index Catalogue.

compiled by individuals; for example, in the 16th century Conrad Gesner "the father of bibliography" whose works in some respects provided the model for the *Bibliotheca Osleriana*, hailed by Professor John Fulton as the greatest achievement of the humanistic movement in medical bibliography. In the 18th century the great Haller and Plouquet; in the 19th century Robert Watt of Glasgow, Thomas Young of London, Callison, the voluminous Danish surgeon, and as a comic relief to these very serious works the alphabetically arranged bibliography of James Atkinson of York, which stopped short after the letter B!

Without in any way detracting from the services of the bibliographical fathers it is obvious that the life of a Government Depart-

ment or public institution is potentially perpetual and not limited by the relatively short span of an individual life. Indeed other medical bibliographies were described by Osler as Lilliputian as compared with the Gargantuan character of the Index Catalogue.

Among bibliographies that of medicine now takes a very high, if not the highest, place; and so largely responsible for bringing about the Index Catalogue of the Library of the Surgeon-General's Office, which beyond any doubt is the most exhaustive medical bibliography ever undertaken, this together with the Index Medicus have made the whole medical world, especially English-speaking readers, hopelessly insolvent debtors. This far-reaching obligation must be most gratefully, and humbly, acknowledged.

The history of the Index Catalogue began in Billings' brain from his experience in 1860 when the need for such a bibliography was painfully forced on his notice, and it is probable that he began to form plans after being given in 1868 a practically free hand with the fund of eighty thousand dollars; the catalogues published in 1872 and 1873 led up to the definite proposals in 1876 contained in his "Specimen Fasciculus of the National Medical Library, under the Direction of the Surgeon-General, United States Army." This was submitted widely to Universities, libraries, and medical men for criticism and suggestions. It was arranged under both authors and subjects, and was so far-seeing that its style and arrangement were practically those subsequently adopted in the Index Catalogue. It was warmly welcomed in his dedicatory address at the opening of the Boston Medical Library in 1878 by Oliver Wendell Holmes who correctly prophesied that a liberal appropriation by Congress to carry out such a work for this advancement of sound knowledge and the improvement of human conditions would greatly redound to the honour of the nation.

The first series of the Index Catalogue began in 1880 when Congress, then urged by Abraham Jacobi (1830-1919) made the first appropriation for this purpose, and its sixteen volumes came out yearly, closing in 1895. It was edited by Billings, who in the last volume spoke of it as "a labor of love," with the co-operation of Fletcher who supervised the proof-reading and devised the abbreviations of the periodicals. As adverse criticisms of the Index Catalogue have been extremely rare, reference may be made to what Billings said in 1891, when the first twelve volumes of the first series had been published; namely that the chief serious errors were those of omission and that of these about fifty had so far been detected.

The second series consisted of 21 volumes which were issued between

1896 and 1916, and were edited by Robert Fletcher until his death in 1912 and was completed by Garrison and Allemann.

The third series (1918-32) consisted of ten volumes and indexed medical literature up to the end of 1925, under the direction of Allemann who was principal assistant librarian from 1922 to 1932.

The fourth series. At one time it was decided that the Index Catalogue should come to an end with the third series. This would have been a bibliographical catastrophe of the first magnitude and have required some corresponding substitute. But fortunately in the following year anxiety was relieved by Surgeon-General M. W. Ireland who, after receiving and considering opinions from various sources, announced that another series would at once be undertaken. An important factor in the success of the Index Catalogue has been the way in which the difficult task, of separating the chaff from the wheat has been carried out. The decision of what articles should be included has probably presented less difficulty than that of exclusion, for a paper manifestly unorthodox and badly expressed may yet contain an idea or observation destined to be of great importance.

THE INDEX MEDICUS

This famous and invaluable monthly bibliography of the World's medical publications, though long a close companion and immediate supplement of the Index Catalogue, was never an official government periodical, and therefore depended for financial support on its sales, thus causing its devoted editor, Fletcher, much business worry. It became a sort of annual Index Catalogue *en miniature* (Garrison, 1915) and, like the larger work, had double entry dates of subject and author. Starting in January 1879, a year before the first volume of the Index Catalogue appeared, it came out monthly until May 1899 when it sank in financial deep water; for, in spite of the help it gave medical writers, its subscription list was never large, much less sufficient to meet the expenses of publication. Many of us, it must be feared, regarded the Index Medicus and the Index Catalogue, as natural blessings, like fresh air and sunshine, and did not realize that gratitude should take a more practical form than passive expectation of their continuance. Three more volumes (1900-2) were brought out under the title *Bibliographia Medica* (Index Medicus) in Paris. In 1903 the Index Medicus was given a fresh lease on life by the wise generosity of the Carnegie Institution of Washington which had been incorporated in 1902 with Billings as vice-chairman of the Board of Trustees. The Index Medicus continued until 1927 when it was amalga-

mated with *The Quarterly Cumulative Index to current Medical Literature*, published since 1916 by the American Medical Association, under the title of *The Quarterly Cumulative Index Medicus*, the Carnegie Institution and the American Medical Association both giving their support.

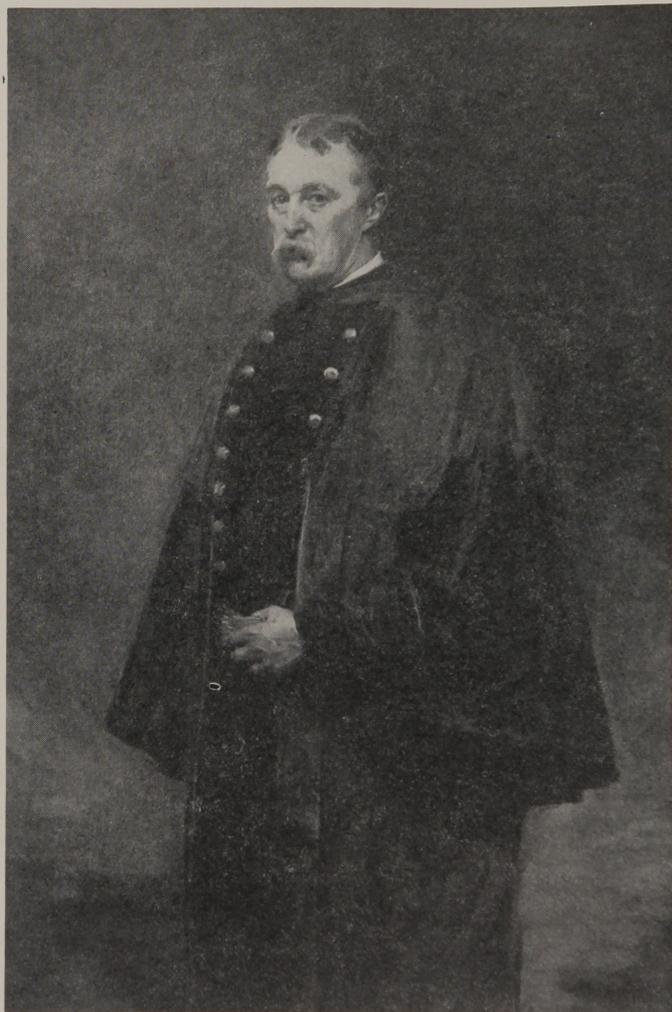
LIBRARIANS

Like many other lovers of literature, whole-time librarians usually lead secluded lives outside the focus of the limelight. The ideal librarian is a saintly, self-denying character with a keen interest not only in books but in their would-be readers, whose time he saves and thereby helps them, rather than himself, into print and prominence. He thus obeys the precepts and follows the example of Henry Bradshaw (1831-86) librarian (bibliothecarius) of the University of Cambridge, England, from 1867 to 1886; this particular office, it may be mentioned, was for three centuries (1278-1577) held by the University chaplain, an arrangement hallowed by ancient tradition and so possibly appropriate as combining the care of the soul with that of the mind, and indeed from the point of view of financial economy, but not from other practical considerations.

The number of medical men who have been whole-time librarians of medical libraries is small; but in the United States what may have been lacking in quantity has been more than made good by quality. To three bibliographer-librarians of the Army Medical Library tribute is most justly due—Billings, Fletcher, and Garrison; for, like the history of the world (T. Carlyle), that of this great library is the biography of its great men

JOHN SHAW BILLINGS

In his time Billings played many parts and with uniform success; a man of affairs, he thought and organized far ahead, on broad lines, and in many directions, as his output of 171 publications in the course of half a century (1861-1911) bear witness. As a bibliographer he has been compared with the encyclopaedic Albrecht von Haller of the eighteenth century, and was given the palm by Osler. From his eminence as a vital and medical statistician he was called in to take an active part in the Reports of the tenth (1880) and eleventh (1890) Censuses of the United States, and he was constantly giving advice on public health and hospitals. Extremely versatile he was a good judge of men—a faculty not always found in scholarly bibliophiles—and selected Fletcher and Garrison for the Army Medical Library, and Welch, Osler, and Halsted for the Johns Hopkins. Garrison from long association with his chief drew the character of the strong, straight man who had



COLONEL JOHN SHAW BILLINGS, M.D., LL.D., D.C.L.
(1838-1913)

Father of the Army Medical Library

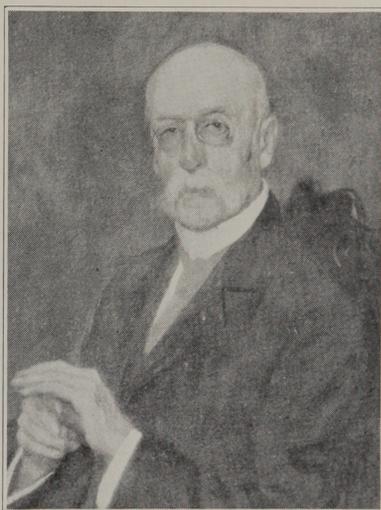
the power of imposing his will on others, and sometimes employed the Napoleonic trait of simulating anger, but hardly ever was so in reality. Welch regarded him as the wisest of men, and Halsted said that he "was too great a man to be fully appreciated in his time." One of his closest friends in London, Sir Lauder Brunton, wrote "as his name shows, he was of Scandinavian ancestry, and he retained the over-

powering strength and energy by which his "Berserker forefathers carried everything before them."

Sir John MacAlister (1856-1925) quoted the following response by Billings to a compliment about his success in getting work done: "I'll let you into the secret—there's nothing really difficult if you only *begin*—some people contemplate a task until it looms so big, it seems impossible, but I *just begin* and it gets done somehow. There would be no coral islands if the first bug sat down and began to wonder how the job was to be done."

ROBERT FLETCHER

Fletcher was a dignified, extremely kindly, hospitable, and learned man, compared as a scholar with William Heberden the elder by Garrison, and described by Osler as looking like a courtly gentleman and student of the old school and seeing life steadily and seeing it whole. Age preserved his best qualities and he lived up to his favorite therapeutic motto "treat any bodily ailment with contempt." Like Billings, with whom he was described as "working beautifully" he set a wonderful example of hard honest work; alike in character they differed in temperament; Fletcher preferred the quiet routine work of the library to the outside activities which were such a noteworthy feature in his colleague's life. Rich in the affections of his professional colleagues, he received honours of the best kind; on January 11, 1906 he was entertained at dinner in Washington and presented with a loving cup by some leaders of the profession. In 1910 he received from the Royal College of Surgeons of England the Honorary Gold Medal "for liberal acts of distinguished labours, researches, and discoveries eminently conducive to the improvement of natural knowledge and of the healing art." This medal instituted in 1802, has during a hundred and thirty-four years been awarded on seventeen occasions only. On October 7, 1912, the honorary degree of M.D. was conferred on him *in absentia* by the University of Bristol.



DR. ROBERT FLETCHER (1823-1912)

Principal Assistant Librarian, Army
Medical Library. Father of the
Index Medicus

In 1911 he had an attack of diphtheria and recovered slowly, but returned to the Library and worked until a few days before his death on November 6, 1912 (at Washington) in his ninetieth year, as did Morgagni (1682-1771), and Clifford Albutt (1836-1925).

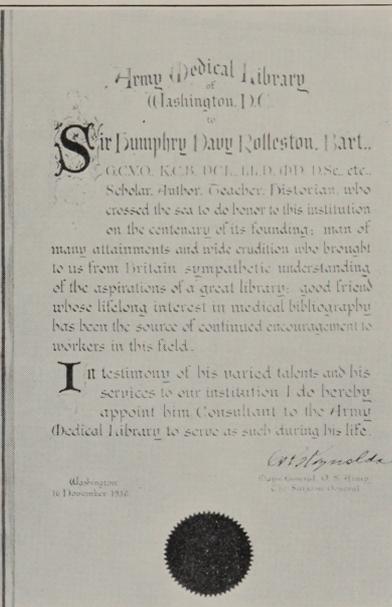
FIELDING HUDSON GARRISON

Garrison was an indefatigable, and equally unobtrusive, worker for the Index Catalogue and as editor of the *Index Medicus* (1903-27); in the earlier years of the latter responsibility he is said to have often spent eighteen out of the twenty-four hours in securing perfect accuracy. He continued to act as an associate editor of its successor *The Quarterly Cumulative Index Medicus* (1927-9). He will long be known for what he entitled "An Introduction to the History of Medicine" (1913, 4th edition, 1929) which is the indispensable companion at the elbow of those who care to verify names, dates, and events. It would puzzle imagination to picture any work, short of a small library, which could correspond to such an introduction. He was a graceful and allusive as well as a prolific writer on many aspects of medicine; thus during the last ten years of his life he wrote 77 articles in the *Bulletin of the New York Academy of Medicine*, of which he had been Consulting Librarian since 1925. Of his full memoir of J. S. Billings (1915) he wrote nearly twenty years later "it took more vitality out of me than anything else I have done. I should never dream of undertaking anything of the kind again." In a letter six months before his death in reply to an inquiry when a new edition of his "Introduction to the History of Medicine" might be expected he modestly wrote with a philosophy somewhat resembling that of Koheleth, the author of *Ecclesiastes*, "Medical publishers, like other business men, have been under the ban of 'Old Man Depression' and are chary about new ventures—in this case, until the fourth edition is completely sold out, which may be *ad Gracecas Kalendas*. I had two drawn contracts for new books and both went up in smoke. But, as the Spaniards say, 'I am glad,' as such things mean using up one's vitality over references and indexing, and often to no purpose."

A great correspondent, he thus had friends, such as Clifford Albutt, though they had never met. He wrote a neat hand without a trace of writer's cramp, though in 1928 he admitted that he had "never had the luxury of a doctor's private secretary." I never saw him, but we had corresponded since 1926, and in the last letter from him, dated March 16, 1935, he spoke of writing "a brief editorial on Fontana, shortly after which I suspend operations until the summer vacation when I usually resume writing." Few medical men can have better deserved the hon-

orary degree of Litt.D. which in 1932 the Yale University honoured itself by conferring on him. With a wide and refined taste in literature the most absorbing interest in his life was music; he was an accomplished pianist, and, perhaps, unexpectedly, was well versed in thermodynamics. An extremely sensitive soul, he lived and laboured in a back-water while honours and promotions drifted by in other directions.

His health had long been poor, as may be suspected from some of the short quotations made above from his letters. A sudden emergency



Major General Charles R. Reynolds, The Surgeon General of the Army, presenting the diploma to Sir Humphry Davy Rolleston.

The diploma presented to Sir Humphrey Davy Rolleston appointing him Consultant to the Army Medical Library.

necessitated an abdominal operation from which he did not recover, dying in the Johns Hopkins Hospital on April 18, 1935. The day before his operation he spoke of his work, of an iconography and bibliography of W. H. Welch, and of a volume of his own collected papers to be published under the title "Medicine in Space" (Sigerist). Like Billings and Fletcher, he was laid to rest in Arlington National Cemetery.

The Chairman:

Ladies and Gentlemen. The Surgeon General is deeply sensible of Sir Humphry's disinterested service to the Library and he takes this opportunity to express his obligation in tangible form.

General Reynolds then presented Sir Humphry with a beautifully engrossed scroll which is reproduced on the preceding page.

The Chairman:

Ladies and Gentlemen: It will interest you to know that the learned institutions of the United Kingdom of Great Britain, the Kingdoms of Belgium and Norway, and the Republics of Cuba, France, Germany, Guatemala, and Mexico have designated representatives who are present tonight. Necessarily, due to the many factors, most of those institutions invited to send representatives were unable to accept, but a large number of greetings have been received. Due to their number it is quite impossible to read these greetings to you, but I can assure you they will be bound and preserved in the Library for future generations to examine.* These letters, in many languages, are posted on boards in the Library for your inspection. I think you will agree that they evidence a keen interest in and appreciation of the Index Catalogue which is an international affair. Particularly your attention is invited to the beautiful scroll from the Royal Caroline Institute, the Royal College of Physicians of Ireland, the Medico-Military School of Mexico, the University of Bern, the British Museum, the Bavarian Academy of Sciences, the Royal Society of Medicine of London, the Royal College of Veterinary Surgeons of London, the Peiping Medical College of China, Academy of Medicine of Toronto, and the Library of the University of Kiel, and that from Oxford University.

And now, ladies and gentlemen, you are invited to inspect the Library as to its operation with especial reference to the production of the Index Catalogue. A description of the various steps which end in the printing of the Catalogue will be found inside your program. The rooms in which the work is carried out, are referred to by number. You will find also inside your program some reprints descriptive of the Library. There are a large number of rare books in the cases in the hall outside and there are more at the end of the corridor and in Room 5. Still more are in the Museum at the far end of the hall. The Museum itself may interest many of you. Finally we shall meet again on the lower floor for refreshment. And so we do now adjourn.

* * *

The guests numbered nearly six hundred. On the platform besides the Surgeon General and Sir Humphry Rolleston were seated the Ambassador of Cuba, Dr. Patterson y de Jáuregui; Dr. Mencia, the Cuban Minister of Health; Lieutenant General von Boetticher, the German Military Attaché; Colonel Torr, the British Military Attaché; Generals Ireland and Patterson, former Surgeon Generals; Miss Margaret Billings, the daughter of Dr. Billings; Lt. Col. Fletcher, grandson of Dr. Fletcher; Mrs. Garrison, widow of Col. Garrison; and Colonels Ashburn, Phalen, and Hume, former Librarians.

Seated in places of honor facing the audience and on either side of the platform were the representatives of learned institutions, libraries and medical societies, and included Dr. Anderson, University

* The list of institutions by countries as read by the Chairman appears under the caption: "Greetings from Beyond the Seas," page 21.

of Toronto; Professor Apperly, representing the Institute of Anatomy of Canberra, Australia; Dr. Avery, representing the Royal Academy of Medicine of Belgium; Dr. Barker, representing the University of Glasgow; Signor Bonardelli, Counselor of the Italian Embassy, Washington; Dr. Camalier, President of the American Dental Association; Dr. De Bayle, Chargé d'Affaires of the Nicaraguan Legation, Washington, President of the Pan-American Medical Society who also represented the Minister of Hygiene of Nicaragua; Dr. de la Mota, Consul General, Dominican Republic, New York City, also represented the Faculty of Medicine of the University of Santo Domingo; Senor Benito Flores, representing the State College of Pueblo, Mexico; Dr. Francis, Librarian of the Osler Library of McGill University; Miss Margaret Garrison; General and Mrs. Gilchrist; Dr. Evarts A. Graham, President of the American Surgical Association; Senor Vincent Sanchez Gravito, representing the State College of Pueblo, Mexico; Mr. Hassall, who presented the greetings of the Royal College of Veterinary Surgeons of London; Mrs. Hume; Don Enrique Lopez Herrarte, Secretary of the Guatemalan Legation, Washington, who represented the Director General of Public Health of Guatemala; Dr. Hoffman, donor of Statistical Collection to Library; Miss Anita Ker, representing the Institute of Biology of Mexico City; Dr. Kerr, delegate of the District of Columbia Medical Society; Dr. Dean Lewis; Dr. Mackall, President of the Bibliographical Society of America; Dr. Malloch, Librarian of the New York Academy of Medicine; Dr. Moll, Pan-American Sanitary Bureau who represented the Director General of Health of Chile; Dr. Munthe, Royal University Library of Oslo, Norway; Surgeon Commander d'Oliveira of the Argentine Navy; Senora d'Oliveira; Mr. Quintanilla, Counselor of the Mexican Embassy who represented Dr. Siurob, Chief of the Health Department in Mexico City; Professor Rice, representing the University of Liverpool, England; Dr. Sigerist, Institute of the History of Medicine of Johns Hopkins University; Dr. Semb, Chief Surgeon of the Municipal Clinic of Oslo, Norway; Dr. Sprigg, President of the Medical Society of the District of Columbia; Dr. James D. Stewart, Librarian and Curator of the Bermondsey Public Libraries and Museum who also represented the Library Association; Mr. Vance, Law Librarian of the Library of Congress; the Secretary of the Venezuelan Legation, represented the Minister of Health and Social Welfare of Venezuela; Dr. White, Superintendent of St. Elizabeth's Hospital, Washington; Dr. Waaler, who represented the Royal Frederick University at Oslo, Norway.

Among the many guests who filled the hall were, Dr. Abbot, Secretary of the Smithsonian Institution; Mr. Joseph Adams, Director of Folger Shakespeare Library; Mrs. Ashburn; Dr. Babbitt, Secretary of the American Laryngological Association; Dr. Bachman, Director of the School of Tropical Medicine, New York City; Mr. Ballard, Director of the Boston Medical Library; Dr. Banay, State Hospital of Worcester, Mass.; Miss Barnett, Librarian of the Department of Agriculture; Dr. Beardsley, Secretary of the American Association of the History of Medicine; Dr. Bett, Medical Librarian of the College of

Physicians and Surgeons, New York City; Miss Sue Biethan, Medical Librarian of the University of Michigan; Dr. Blackerby, Health Department, Louisville, Ky.; Mrs. Blackerby, Woman's Auxiliary to Kentucky State Medical Association; Miss Blogg of the Welch Medical Library; Dr. Briggs of the Bureau of Standards; Mrs. Briscoe, Librarian of the Medical School of the University of Maryland; Dr. Boles of Philadelphia; Dr. Bocock, Superintendent of Gallinger Municipal Hospital of Washington; Mr. Bowerman, Librarian of the Public Library of the District of Columbia; Dr. Braden, President of Transylvania College, Lexington, Ky.; Dr. Allen Brown of the Veterans Bureau; Dr. Carpenter of Philadelphia, delegate of the American Pediatric Society; Dr. Chamberlin, American Laryngological Association; Dr. Chapman, Superintendent of Sheppard & Enoch Pratt Hospital, Towson, Md.; Dr. Herbert Clark; Mrs. Leila Clark, Assistant Librarian of the U. S. National Museum; Dr. Cogan, Dean of the School of Dentistry of Georgetown University, Washington; Dr. Cohn of the Rockefeller Institute for Medical Research, New York City; Dr. Connor of New York City; Msgr. Corrigan, Rector of Catholic University of America; Mr. Corbin, Librarian of Smithsonian Institution; Mr. Corse, representing Association of Special Libraries and Information Bureaus of London; Dr. Craig, President of the North Carolina State Board of Health, Winston-Salem; Mr. Crispin, Executive Secretary, Philadelphia County Medical Society; Dr. Crowell, President of Gorgas Memorial Institute of Chicago; Dr. Darrach, Delegate of American Surgical Association; Dr. Deibert, President of the Department of Health of the State of New Jersey; Dr. Darlington, American Clinical and Climatological Association; Miss Dondale, Librarian of Albany Medical College; Miss Doss, Zoological Division of the Bureau of Animal Industry; Dr. Douglas, Librarian of Harrisburg Academy of Medicine, Harrisburg, Pa.; Miss Ehlert, Assistant Librarian, Bureau of Animal Industry; Mr. Everett, American Social Hygiene Association; Dr. C. E. Finlay of Havana, Cuba; General Fisher, Arlington, Va.; Dr. Fowler, President of the American Otological Association; Mrs. R. H. Fletcher, Jr.; Mr. Frankenberger, Librarian of King's County Medical Society; Dr. Julius Friedenwald; Dr. Harry Friedenwald; Dr. Jonas Friedenwald; Mrs. Ida Frohlin; Dr. Fulton of Yale University; Dr. Walter Freeman; Miss Margaret Garrison; Miss Gay of the American Museum of Natural History; Dr. Ghormley, Secretary of the American Orthopedic Association; Dr. Andrew C. Gillis, Baltimore; Dr. William Tate Graham, Virginia State Board of Health; Miss Grant, Librarian of Guthrie Clinic Library, Sayre, Pa.; Miss Gould, Walter Reed General Hospital; Lt. Colonel Griswold; Mrs. Griswold (grand-daughter of Dr. Robert Fletcher, formerly of this Library); Dr. Hall, Professor of Zoology, U. S. Public Health Service; Dr. Hagner, Delegate of American Association of Genito-Urinary Surgeons; Dr. Harris, Secretary, American Otological Society; Mr. John F. Hayes; Dr. Helmholtz, President, American Pediatric Society; Dr. Hinman, President, American Association of Genito-Urinary Surgeons; Miss Holt, Librarian, Harvard University School of Medicine; Dr. His-



AT THE CLOSE OF THE ORATION

Sir Humphrey Davy Rolleston meeting notables present. In the picture are shown Dr. Dean Lewis, Surgeon-in-Chief, Johns Hopkins Hospital, Dr. Vance, Law Librarian of the Library of Congress, Prof. Henry Sigerist, of Johns Hopkins University, Mr. Toepper, Assistant Librarian, The Librarian Army Medical Library, and others.

cock, Yale University Department of Public Health; Dr. Hunt, American Neurological Association; Mr. Howson, Librarian of Columbia University, New York City; Mrs. Ireland, General Keefer; Dr. King, Secretary, Congress of American Physicians and Surgeons; Dr. Krumbhaar, University of Pennsylvania; Miss Keener, Chief Nurse and Assistant Superintendent, Army Nurse Corps, Walter Reed General Hospital; Dr. Larkey, Librarian of Welch Medical Library, Baltimore; Dr. Waldo Leland, Harvard University Library; Dr. Lydenberg, Director of the New York Public Library; Mr. Mason, Librarian, George Washington University, Washington; Dr. McPhaul, State Health Officer of Florida; Dr. McKinley, Dean of George Washington School of Medicine; Mrs. McCormack, Woman's Auxiliary of Kentucky State Medical Association, Louisville; Dr. McCoy, Director of the National Institute of Health; Mr. McDaniel, Librarian of the College of Physicians, Philadelphia; Dr. MacNeal, American Association of Pathologists and Bacteriologists; Dr. Edith MacBride-Dexter, Secretary of Health, Harrisburg, Pa.; Dr. Mixter, secretary, American Surgical Association; Dr. G. Brown Miller, American Gynecological Society; Dr. Mohler, Chief of the Bureau of Animal Industry; Dr. Moursund, Dean of the College of Medicine of Baylor University, Dallas; Mrs. Munthe of Oslo,

Norway; Miss McCann, Librarian of the University of Pittsburgh School of Dentistry; Miss Naylor, Librarian, Academy of Medicine of Northern New Jersey, Camden; Miss Noyes, Librarian, Medical and Chirurgical Faculty of the State of Maryland, Baltimore; Dr. Olesen, Assistant Surgeon General, U. S. Public Health Service; Dr. Orr, Librarian, Winnett Memorial Library, Lincoln, Neb., the President of the American Orthopedic Association; Fr. O'Leary, President of Georgetown University, Washington; Mr. Parma, Curator of Rare Book Collection, Library of Congress; Dr. Pendergrass, Secretary, American Roentgen Ray Society; Mrs. Phalen; Miss Perkins, Librarian of Worcester Medical Library; Mr. Perley, Division of Classification, Library of Congress; Dr. Paulin, President, American Clinical and Climatological Association; Mrs. Reynolds, Dr. Riley, Director of the Department of Health of Maryland; Commander Roddis, Bureau of Medicine and Surgery, Navy Department; Mr. Roberts, Superintendent of the Reading Room, Library of Congress; Dr. Rugh, American Orthopedic Association; Dr. Ruffin, Washington; Dr. Ruhland, Health Officer of the District of Columbia; Dr. Sandy, Secretary of the American Psychiatric Association; Dr. Schoening, Assistant Chief, Bureau of Animal Industry; Mr. Schneider, Librarian, Catholic University of America, Washington; Mr. Schopp, Insurance Librarian, Prudential Insurance Company, Newark, N. J.; Major Julia Stimson, Superintendent Army Nurse Corps; Miss Schick, Librarian, Walter Reed General Hospital; Mr. Shatzky, Librarian, New York State Psychiatric Institution; Mr. Scheirer, Surgeon General's Office; Miss Sommermeyer, Librarian, Metropolitan Life Insurance Company Sanitarium; Dr. Strong, Loyola University School of Medicine, Chicago; Dr. Shurly, American Laryngological Association; Captain H. W. Smith, President, U. S. Naval Medical School, Naval Medical Center, Washington; Dr. TeLinde, Secretary, American Gynecological Society; Colonel Tasker; Miss Thompson, Librarian of the Department of Labor; Miss Trask, Rockefeller Institute of Medical Research; Dr. Tucker, College of Medicine, University of Cincinnati; Dr. Vidrine, Dean of the Medical Center, Louisiana State University; Dr. Viets, Boston; Professor Watson, who represented the University of Edinburgh; Mrs. Watson, Librarian of the Delaware Academy of Medicine; Dr. Wood, formerly Librarian of the College of Physicians of Philadelphia; Major Narcia, Mexican Army Medical Corps.

Following the examination, by those interested, of the operation of the Library, and the viewing of the large exhibition of rare and interesting books, a description of which appears elsewhere, refreshments were served on the lower floor while the Army Band played. The concourse of distinguished people, many with decorations about their necks and upon their lapels, and many ladies present served to enhance the beauty of the scene. It made one a little regretful that on the morrow the palms would disappear, the gay flags would come down, the orchestra would have put its music away, and the Library would again settle down to its work amid the dust of the books. Nevertheless I think the old fellow (if we may call the Library that) has preened himself a bit and let us hope he is thinking about a new spring suit!

THE GREETINGS FROM BEYOND THE SEAS

By COLONEL HAROLD WELLINGTON JONES, *Medical Corps, U.S.A.*
The Librarian, Army Medical Library

WHEN the Surgeon General invited some 1200 of those whom he knew had long been interested in the Army Medical Library, to attend the celebration of the centenary of its founding, he expressed the hope that those institutions unable to send a representative would give the Library instead a word of greeting. Nor was he to be disappointed, if the messages from the far corners of the earth can be rightly interpreted. It is my pleasant task to contemplate these more than two hundred friendly salutations which have come from British Dominions, from the distant Empire of the rising sun, and the cedars of Lebanon, from France and Belgium, from almost every part of the civilized world abroad, in fact, down to those received from all over our own land. To say they warm the cockles of one's heart is to say feebly, for they do more—they make one feel that such work as ours knows no geographical boundaries. If we are to believe them, we who are one hundred years old today have not lived in vain.



COL. HAROLD WELLINGTON JONES, M.C.,
U. S. ARMY
The Librarian, Army Medical Library

Sitting at Dr. Billings' desk, he looks down upon me from the wall and his keen eye seems to warn, "Mind you make no mistake and classify the Royal Society with the high school at Squash Center." Garrison, too, is beside him and the twinkle in his eyes becomes him more, I think, than the uniform, for Garrison got his regimentals too late. So I feel that in acknowledging these many wonderful messages, these two, and I am certain that old Dr. Fletcher in the Hall as well, are listening in with enthusiasm.

What is this beautiful scroll? It is a greeting on parchment from the Royal Caroline Institute of Stockholm, and the Latin is finely

lettered. An artist composed it—an artist lettered it—it is the perfect tribute from Dignity enthroned. The Royal College of Physicians of Ireland have also sent us a lettered scroll testifying their estimate of the Library's worth with an accuracy admitting of no controversy, saying that their Society "For sixty years past, ever since the appearance of the first volume of your great Index Catalogue, they have turned with confidence to consult that work, and they have watched with admiration the wonderful growth of your Library . . . while the Index Catalogue has put its treasures freely at the disposal of students wherever Medicine or its history is studied."

The Council of the Royal Academy of Medicine in Ireland also sends us an imposing diploma and greeting which recites the debt that they and medical workers throughout the world owe to the Library. . . . "That debt, we feel sure, will be acknowledged by many nations and many peoples, but by none, we believe, more sincerely than by the Fellows and Members of the Academy." Surely the Irish must be the despair of those others who endeavor to compose graceful tribute!

The Medico-Military School of Mexico City, in the goodness of their hearts, always warm to the Library, and their Association of Military Surgeons have presented a Diploma of Honor, no less than thirty by twenty inches, a tribute to the usefulness of our institution. From Bern, Switzerland, the University under the Seal of the Chancellor tells us "Der Rektor kennt aus personlicher Anschauung . . ."—no mere dry and impersonal greeting. Moreover he mentions the Museum for good measure in the tribute!

The Academy of Medicine of Toronto in a beautifully illuminated address in red and green and gold says among other things. "Though separated from the United States of America by the boundaries of nationality, we have a common heritage in medicine. We are proud to be united in the bond of preserving and making available the knowledge of disease, its treatment and prevention."

The University of Bologna in a diploma resplendent with color and great seal utters this sentiment, nobly said (and I take the liberty of translating it), likening the Library's labor and patience in producing the Index Catalogue to "A flame of faithful, unselfish devotion, lighting the way to the alleviation of human suffering." The Bavarian Academy of Sciences felicitates the Surgeon General upon the resumption of publication of the "indispensable" Index Catalogue. From Peiping, the Medical College presents a framed address of honor and congratulations. Moreover, with thoughtful courtesy their representative supplied a translation of the central idea in the address—"A Century of Progress."

From Britain, the President and Council of the Royal College of Veterinary Surgeons assembled in Council, October 9, 1936, do say under seal and signature that "This opportunity is taken to express to the Government of the United States, to the Surgeon General and to his Librarian, the grateful thanks of the Council of the Royal College, speaking for the whole of the Veterinary Profession in this country, for inestimable benefits conferred upon them by the preparation and publication of the great Index Catalogue."

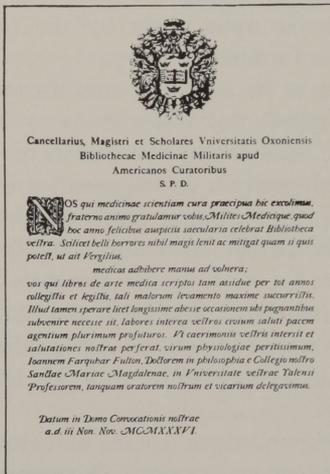
The British Museum has this tribute in its message, now framed, a tribute which in its dignified sincerity means much to the Army Medical Library and to the Surgeon General: "Raised by the genius of John Shaw Billings to its present unchallenged position as the greatest collection of medical literature in existence, the Library has extended its service beyond the United States Army to the medical profession of America, and further to that of the world. . . . It is the Trustees' confident hope that the splendid tradition associated first with the name of the Surgeon General's Library and now with that of the Army Medical Library will be perpetuated during the second century of its life in even greater achievement."

The Rector of Kiel University acknowledges their indebtedness to us and sends a happy message of congratulation. Germany has indeed done well with her many acknowledgments from all parts of the Republic.

The Royal Society of Medicine, of London says of us, "The achievements of the American Army Medical Library since its foundation until the present day have been unequalled throughout the world, and in particular the Index Catalogue is without doubt one of the greatest contributions made by any institution toward the furtherance of medical knowledge." Furthermore, this is signed by their President, by their Honorary Librarians, their Honorary Secretaries, their Librarian and their Secretary!

Last of all comes Oxford University with its fine scroll placed in our hands by the delegate, Professor Fulton of Yale University, and it seems a fitting close to the acknowledgment of these beautiful works of art to reproduce it upon these pages. We are old, but what is a century to an institution which was founded in the mid eleven hundreds? A free translation of the message in beautiful Latin reads, "The Chancellor, the Masters and Scholars of the University of Oxford salute the Army Medical Library. We who are here ministering to the science of medicine, with a special solicitude congratulate you with a fraternal spirit, Soldiers and Physicians, that in this year under happy auspices your Library celebrates its centennial. Indeed, nothing else

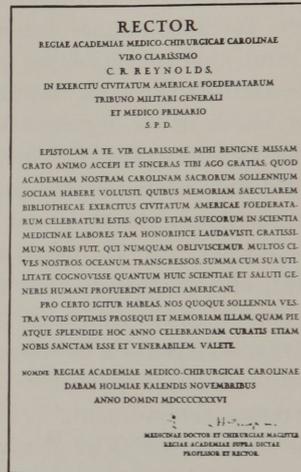
can alleviate and mitigate the horrors of war better than if somebody can, as Virgil says, 'Put healing hands to wounds.' You, by assiduously collecting and reading books, written of the medical art through so many years, have contributed materially to the alleviation of disease."



The diploma sent by Oxford University congratulating the Library. The original measures 2½ x 2 feet. A translation appears elsewhere in this issue.

Now having regretfully done with the diplomas let us examine a few of the hundreds of splendid letters, many of them containing sentiments as fine as those engraved upon parchment. From Strasbourg and the National and University Library: "La reputation de cet établissement qui est sans doute la plus importante des bibliothèques médicales du monde, a depuis longtemps dépassé les frontières des Etats-Unis. Les médecins de toutes les nations connaissent et apprécient le merveilleux instrument qu'est l'Index Catalogue, instrument indispensable à tous ceux qui étudient le passé proche ou lointain de la médecine." How we value such words!

Here is the greeting from Algiers and the Pasteur Institute, saying: "Nous nous réjouissons de l'occasion qui nous est offerte de rendre hommage au temple du savoir que représente l'Army Medical Library." O Temple of Knowledge, glutted to the full of literary treasures, may you bear the increasing burden yet a little while until your supplications



The diploma sent by the Royal Caroline Medical Institute of Sweden. This Institute awards the Nobel Prizes in physiology and medicine.

shall be heeded! (Lest the reader misunderstand, the sentiments just expressed are the Librarian's.)

The University of Leipsic breathes the hope, mindful of our age, "Möge es der Army Medical Library vergönnt sein, ihre der Welt anerkannten hervorragenden Leistungen auch im zweiten Jahrhundert ihres Bestehens zu ihrem Ruhme und zum Segen der Wissenschaft erfolgreich fortzusetzen." May he who wrote that line have spoken a true prophecy and may we continue in honor and service in our second century as in our first. Indeed we may feel sure of this for has not the Bavarian State Library at Munich uttered the same sentiment, if not in the same words?

The Library at Frankfurt-am-Main goes even further and in a cheery message it hopes that "Within the next 50 years transportation shall be facilitated to such an extent, that the Frankfurt Library shall be able to send a representative for the 150th anniversary." It seems quite proper for us to extend a cordial invitation to Frankfurt to be represented in 1986, for there can be no doubt that the celebration will be duly held. Long before that date we can be sure that Germany will have solved the transportation problems of the Atlantic.

Belgium compliments us no less, and the tribute from the Royal Library in its capital: "Une œuvre bibliographique de tout premier ordre qui n'a pas d'égalé dans le monde entier," if duly earned, warms our hearts.

From the Island Empire of the Rising Sun the National Research Council in Tokyo offers its hearty congratulations, wishing the Library may ever continue to serve more and more as an indispensable organization for the progress of medicine and surgery and through it the promotion of man's happiness. The expression in the last few words touches me. "The promotion of man's happiness." The workers in science, are they always laboring for the happiness of mankind? In what often seems a mad world we may doubt, but not despair.

The greetings from the London School of Tropical Medicine of the University of London is quoted in large part, for the warm sincerity of the letter cannot be passed over. "It has been said that the Library is the post-graduate school for the practicing physician, and that research begins in the library and not in the laboratory. It is fitting then that the London School of Hygiene and Tropical Medicine, founded for the dual purpose of post-graduate teaching and research, should send an expression of its gratitude to the greatest medical library of the world. It is fitting also that this School, housed and equipped by American benefaction, should acknowledge its indebt-

edness for the priceless gift of the Index Catalogue and the Index Medicus, those monuments to the self-sacrificing labours of Billings and Fletcher and their successors at the Army Medical Library in America, whose work has become a part of the heritage of this School. Concerned with the great twin subjects of hygiene and tropical medicine the School is proud to recall that Colonel John Shaw Billings after his thirty years of service to the Army Medical Library retired to accept the Chair of Hygiene at the University of Pennsylvania, and that in the list of his distinguished successors as Librarians there appears the name of Walter Reed whose services to the science of tropical medicine are an abiding inspiration to all workers in that field."

From the Lister Institute of Preventive Medicine of London, Professor Bulloch writes, "In connection with the celebration of the centenary of the foundation of the Army Medical Library in Washington, the Lister Institute of Preventive Medicine in London desires to offer its warmest congratulations and hopes for the success of this historic occasion. Originally a handful of books which slowly grew to only 2000 volumes in the course of 30 years, this Library received an immense impetus by the tireless energy and supreme organizing ability of John Shaw Billings who, in 30 years' service, raised the Library to the premier position of medical libraries in the world and effected an increase of 150-fold in its volume. Not only did it become a treasure house for books and periodicals, but also the contents of these became known from 1880 onwards by the publication of the magnificent Index Catalogue which has been the admiration of all medical scholars. Not only was the Index Catalogue begun, but also for more than half a century it has been continued with an ardour which makes its 3 complete series the greatest bibliographic work ever published. The Lister Institute of Preventive Medicine is devoted to medical science and contains many active workers who have daily received an intellectual stimulus from the possession and study of the Index Catalogue of the Surgeon General's Library and the Index Medicus. It is, therefore, with peculiar pleasure that the Lister Institute of Preventive Medicine sends across the Atlantic a hearty greeting and an expression of gratitude to the Authorities of the Army Medical Library in Washington on the celebration of the Centenary of the foundation of the most famous and the greatest medical library in the world."

The University of Cambridge Library says of us: "The Army Medical Library by its splendid series of Catalogues has laid the world of doctors and librarians under a great debt: it is, however, a debt which we are glad and thankful to acknowledge and which we trust will increase."

Now comes the Royal Hungarian University of Péter Pázmány. Does that sound like a legal phrase, perhaps like a petitioner on bended knee approaching the jurist with his prayer? Indeed no, it is merely Hungary kissing her finger tips at us across the sea, and how reminiscent of the old world is her wish for the library, today a supposed centenarian—"Vivat, crescat, floreat!"

The Royal University of Uppsala, Sweden, although unable to be represented, sent its best wishes, saying, ". . . this library with its magnificent collections is of an importance reaching far beyond the boundaries of the United States of America. Its collections have attained such an admirable completeness that the monumental Index Catalogue of the Library in reality forms an excellent universal bibliography of the medical literature and thus makes an indispensable help, consulted almost daily in the libraries all over the world."

The South African Institute for Medical Research from Johannesburg sent heartiest congratulations by the Director, Spencer Lister, who writes: "In this distant land we are not unmindful of the outstanding service that has been rendered to humanity in the cause of medical progress by the Army Medical Department and count it an honor to have this opportunity of paying a tribute of esteem to the Army Medical Library which is such an essential branch of that organization." Would that Billings were living today that he could realize that the Dark Continent of his day has been lighted and that the Library has in truth played a part in it.

Siam has not forgotten us and Chulalankarana University in Bangkok sends us a cheery message from amid that fairyland of gold encrusted temples, not only to congratulate the centenarian but to announce the arrival of a youngster who is now cutting its teeth upon a few thousand volumes, in fact a new medical library has been born in Siam!

Were it not for the limitations of space in the publication of the events of the celebration many more letters could be quoted, but in the cross section I have attempted to place on view the spirit of the greetings from overseas. It is hoped that all have been acknowledged at the close of this paper. I have been asked: "Why have you not said something of the greetings from America?" The answer is that invitations to foreign lands were sent with the full knowledge that except in the rarest instances no representative would be able to make the journey to Washington, and those institutions receiving invitations were asked, as has been said at the beginning of this paper, to send a greeting. Because they responded magnificently, special acknowledgment has been made in these few pages.

In the case of the invitations to American Institutions, their representatives came by the score in person. To the Library, personal representation is far more flattering than any diploma. Could one say more?

The full list of letters of greeting, as far as it is possible to give it, follows. With a few exceptions which arrived too late to be read, the list is as presented by the Chairman to the assembled guests, at the ceremony.

THE LETTERS

Algiers—Pasteur Institute;

Argentina—National Academy of Science of Cordoba; Faculty of Medical Science of the University of Buenos Aires; University of La Plata;

Australia—Commonwealth Institute of Australia; Government Statist;

Austria—National Library; University Library of Vienna; Medical Society of Vienna; Academy of Science in Vienna; Academic Body of the University of Vienna; Institute of the History of Medicine, University of Vienna;

Belgium—Royal Library of Belgium; Royal Academy of Belgium; Royal Academy of Medicine of Belgium; Catholic University of Louvain; Post Graduate Institute of Belgium; Army Medical Service;

Brazil—Library of the Faculty of Medicine of Bello Horizonte; Minister of Education and Public Health;

Bulgaria—University of Sofia;

Canada—Osler Medical Library of McGill University; Vancouver Medical Association; Laval University of Quebec; McGill University; Queen's University of Kingston; University of Montreal; University of Toronto; Director General of Medical Services for Canada;

Chile—Director General of Public Health;

China—National Library of Peiping; National Quarantine Service; Peiping Union Medical College;

Colombia—National Department of Health;

Cuba—Library of the School of Medicine of the University of Havana; Academy of Medical, Physical and Natural Sciences of Havana; Minister of Health of Cuba;

Denmark—Royal Library, Copenhagen; Royal Danish Academy of Sciences and Letters;

Dominican Republic—Medical Faculty of the University of Santo Domingo;

England—Badleian Library at Oxford; John Rylands Library; Library Association; Association of Special Libraries and Information Bureaux; Bibliographical Society; British Association for the Advancement of Science; British Museum; Science Museum; Wellcome Historical Medical Museum; Medical Research Council; Medical Society of London; Pharmaceutical Society of Great Britain; Royal Society of Medicine; National Veterinary Medical Association; Birmingham Medical Institute; Medical School of Guy's Hospital; Royal Army Medical College; Royal College of Surgeons of England; Royal College of Veterinary Surgeons; Lister Institute; Liverpool School of Tropical Medicine; Royal Sanitary Institute; London School of Hygiene and Tropical Medicine; University of Birmingham; University of Bristol; University of Liverpool; University of London; University of Oxford; University College of London; University Library of Cambridge; Admiralty; Director General of Navy; Director General of Medical Services of the British Army; Lord Cecil of Birmingham; Lord Dawson

of Penn; Sir James Barrie; Squire Sprigge, Editor of the *Lancet*; Sir D'Arcy Power; Henry Guppy;

Estonia—Tartu University;

Finland—University of Helsinki;

France—National Library; National and University Library of Strasbourg; League of Red Cross Societies; Pasteur Institute; Academy of Medicine; Universities of Bordeaux, Montpellier, Paris; Minister of War; Inspector General of the Medical Service of the Navy;

Germany—German Library, Leipzig; Library at Charlottenburg; Senckenberg Library at Frankfurt a. Main; State Library of Bavaria; State Library of Prussia; German Society of History of Medicine, National Science and Technics, Berlin; Library of Society of National History and Medicine, Dresden; Medical Society of Berlin; Society of Sciences in Göttingen; Chemotherapeutic Research Institute, George Speyer-Haus; German Museum of Hygiene of Dresden; Ibero-American Institute of Berlin; Institute of History of Medicine, Leipzig; Institute of History of Medicine and Natural Sciences, Berlin; Academy of Sciences in Saxony, Leipzig; Charles Franz University in Graz; Medical Faculty of the Hessian State University, Giessen; Johann Wolfgang Goethe University at Frankfurt a. Main; Martin Luther University, Halle (Saale); Psychological Institute of the University of Leipzig; University of Hansa, Hamburg; University of Heidelberg; Library of the University of Leipzig; University Library of Göttingen; University of Munich; University of Tübingen; University of Würzburg; Chief Sanitary Inspector of the Army; National Bureau of Public Health; Dr. M. Planck; Surgeon General of the Army, Berlin;

Greece—Academy of Athens;

Guatemala—Minister of Public Health; Secretary of Foreign Relations;

Haiti—Director General of Public Health;

Hungary—Hungarian Academy of Science; Royal Hungarian Francis Joseph University; Royal Hungarian Peter Pázmány University of Budapest; Royal Hungarian Department of Interior;

India—Editor of Indian Journal of Medical Research;

Ireland—Royal Academy of Medicine; Royal Irish Academy of Dublin; Royal College of Physicians;

Italy—Library-Pinacoteca-Museum of Milan; Vatican Apostolic Library; Royal National Academy of the Lincei; Royal Academy of Sciences of the Institute of Bologna; Academy of the History of the Healing Arts; Royal University of Milan; Royal University of Bologna; Journal of Medico-Military Medicine, Ministry of War; Director General of Health of the Ministry of Interior; National Italian Commission for Intellectual Coöperation; Professor Castiglione;

Japan—National Research Council of Japan; Kyoto Imperial University; Tokyo Imperial University;

Latvia—University of Latvia;

Lebanon—American University of Beirut;

Lithuania—University of Vytautas the Great;

Mexico—Faculty of Medicine at Morelia; State College of Puebla; Institute of Biology of the National University of Mexico; National School of Homeopathic Medicine; Medico-Military School of Mexico City; Department of Health of Mexico.

Netherlands—Dutch Medical Library; Royal Academy of Sciences at Amsterdam; University of Leyden;

- Nicaragua*—Minister of Hygiene and Public Welfare in Nicaragua;
Norway—Medical Society of Norway; Royal Frederick University;
Palestine—The Hebrew University of Jerusalem;
Peru—Department of Public Health;
Poland—Jagiello Library in Krakow; Medico-Historical Institute of the Jagiello University; Joseph Pilsudsky University in Warsaw;
Salvador—Director of Public Health;
Scotland—National Library of Scotland; Royal Medical Society of Edinburgh; Royal Society of Edinburgh; University of Glasgow;
Serbia—Royal Serbian Academy;
Siam—Faculty of Medicine of Chulalongkorn University;
South Africa—Royal Society of South Africa; South African Institute for Medical Research;
Sweden—Royal Swedish Academy of Science; Royal University Library of Uppsala;
Switzerland—National Library of Switzerland; Library Society of the University of Zurich; Swiss Society of the History of Medicine and Natural Sciences; Medical Faculty of the University of Basel; University of Zurich;
Venezuela—Dental Association of Caracas; Minister of Health and Social Assistance;
Yugoslavia—University of Zagreb.

LIBRARY STAFF

(All of whom were present)

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FROM DRAWING TO PHOTOGRAPHY IN COLOR

AN EXHIBITION ON THE HISTORY OF THE ART OF MEDICAL BOOK
ILLUSTRATION FROM THE 12TH TO THE 20TH CENTURY
ARRANGED AT THE CENTENNIAL CELEBRATION OF
THE ARMY MEDICAL LIBRARY, NOV. 16, 1936

BY CLAUDIUS F. MAYER, M.D., *Assistant Librarian*

(With five illustrations)

1. THE LEGEND

ILLUSTRATIONS are the best means of spreading knowledge. Often, several pages of text cannot so well describe a pathological specimen or a trick of surgical technique as a simple but well made drawing. No wonder that illustrations played an important role in the development of the medical and allied sciences.

In general, the history of medical book illustration parallels the development of art, yet the particular subject and the special purpose of illustration distinguishes the art of medical book illustrators, who have to bring into harmony beauty with exactness and the fanciful with the scientific. Until the middle of the 19th century, illustrations in medical books were drawings transferred to wood, metal, or stone by the artistic method of reproduction (engraving, etching). Since about 1850 these finer arts of illustration were gradually replaced by photography and the photomechanical processes.

A. *Era of hand drawing.* The love of pictures from time immemorial has been a passion. In the manuscripts of the Middle Ages the dullness and monotony of the caligraphy were relieved by the interspersed decorations and pictures in miniature. Scenes of surgical operations (1), illustrations showing the positions of the fetus in the uterus (2), and similar other figures occur in not a few medieval medical manuscripts. Schematic drawings of urine bottles showed the colors of urine and their prognostic importance in various diseases (3). Sketches of the human body were drawn to help the physician in bloodletting, to find the superficial veins the more easily, or to illustrate perhaps the influence of the stars upon the organs of the body (4).

B. *Era of wood-cut.* All medical science had come to us from the hands of the Arabs, to whom representation of the human figure was prohibited for religious reasons. This explains why the early printed

medical books were not illustrated. Sometimes, however, the first page of the book was decorated with floral ornaments in the style of manuscripts (5). The early textbooks of anatomy were published without any human figure (6) on the pages.

To Italy fell the honor of making the book with engraved illustrations known to the world. The first illustrated book was printed in Rome in 1467, and contained designs taken from compositions of the famous Italian painter, Fra Angelico. In the engraved wood block, as



Woodcut titlepage of Mondino's Anothomia (Leipzig, ca. 1493), one of the earliest "illustrated" anatomical books of the 15th century.



Woodcut illustrating the operative treatment of ectropion in Bartisch's Augendienst (Dresden, 1583).

in the printing type, it is a projection in the wood which, being inked and passed under a press, leaves on paper its lines in block. This method of reproduction was especially suitable for illustrations of herbals (7), or books related to medical astrology (8), in which the engraving consisted mostly of lines without any shadow. In many of these early incunabula the purity of design is remarkable in spite of the roughness of the engraving.

The Italian art of medical book illustration is well-represented by a wood-cut title-page of Mundino's anatomical work (9), representing a professor of anatomy lecturing upon the intestines, together with his famulus who performs an anatomical dissection; in the background one sees rocks, hills and trees of the surrounding country. In Ketham's anatomical book the woodcuts, though intended for physicians, are only schematic representations of the human body (10). Even a few lines

cut in wood, however, were better than no illustration at all, especially when the medical book was discussing such difficult questions as the qualities and grades of the various medicaments (11). After the impression of the book the illustrations were sometimes painted by hand. Such colored woodcuts occasionally occur in herbals (12) or other medical books, and represent the earliest attempt of "color-printing."

The French School of book illustration was in its hey day by the year 1500, but solely in miniature and ornamentation. The Books of Hours (13) was illustrated by Simon Vostre, and the figures were engraved in relief on metal so that the lines became very fine, the background stippled, and we find the border without scratches. But even French artists could not do justice to anatomical figures in the pre-Vesalian period (14). No wonder that in the first years of the 16th century, Hieronymus Brunschwig, a barber-surgeon in Strasbourg, and Jacobus Sylvius, a professor of medicine in Paris, spoke very derisively of medical and anatomical illustrations as being only an "eyeful" for woman folk. But though an enemy of pictures, Brunschwig himself needed woodcuts in his *Hausapotheke* (15) in order to have a better sale of his book.

Simply embellished with crude illustrations, the medical book assumed in the 16th century the grand airs of the Renaissance. Association of physicians with artists such as Leonardo Da Vinci, Dürer, etc., has been not without favorable influence upon the medical book-illustrating art. Dürer created a German art of woodcut (16), and he was imitated by many other engravers in Germany. How beautiful are the full-page woodcuts of Johann Wachtlin, engraver in Strasbourg, in the surgical textbook of Hans Von Gersdorff (17), or the almost miniature fine woodcuts of Heinrich Vogtherr, printer and engraver in Strasbourg, in the luxuriously decorated *Tacuin Sanitatis!* (18). Vogtherr began to publish several anatomical books and fugitive sheets around 1538-1539, but in these works his drawings are very crude and anatomically incorrect (19, 20).

The influence of graphic and plastic arts upon medical illustrations is best seen on the anatomical plates of Vesalius, founder of modern anatomical research (21). The feeling for formal beauty and artistically appealing illustrations becomes apparent in the work of Charles Estienne, but in his illustrations the dissected human body assumes various poses, which is distracting, and puts his figures at the level of the nudities drawn by Fontainebleu artists (22).

About the same time a great work of surgical classics was about to be published. Guido Guidi, professor of medicine in Paris (1542-1548), translated a collection of surgical books from Greek into Latin. *Prima-*

tice, who was painter, engraver and architect to the French King, drew the illustrations to the text, but the book was published without his extremely fine drawings. The drawings together with the original manuscript of Guidi are now in the possession of the Bibliothèque Nationale, and bear testimony to the great advances of medical illustrative art made in the early part of the 16th century (23).

Books on medical subjects became more and more richly illustrated after 1550. The book of Lycosthenes (1518-1561) on prodigies and monsters is very remarkable because it contains several hundred simple woodcuts in the text (24). The herbals of this period were also richly illustrated and beautiful with many faithful and characteristic drawings (25). At the end of the 16th century the perfection of the art of wood engraving proved highly useful for representations from nature, and the ophthalmological work of Bartisch published in 1583 contains many good illustrations of eye diseases (26).

Toward the beginning of the 17th century, woodcut illustrations became very common in medical books as shown by a number of surgical works and anatomies published in this period. The surgery of Della Croce (27) or that of Fabricius Hildanus (28) contain many strikingly good woodcuts. During the 17th century, wood engraving was gradually replaced by line engraving in metal, but woodcuts remained as the chief means of illustration in the popular books sold at low prices (29, 30).

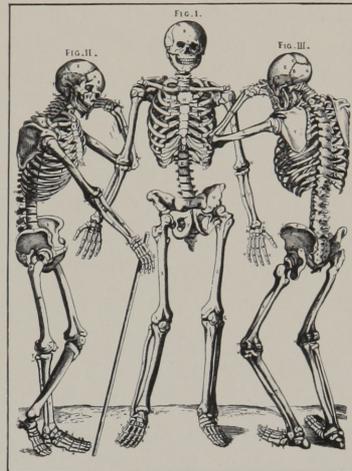
C. Era of Line Engraving and Etching. Line engraving in metal has been already used in 1477 for book illustration, but the early process of line engraving was defective. Line engraving in copper had established itself about 1550 to become popular in the 17th century. A line engraving is obtained from incised lines on a plate of metal, which may be iron, copper, silver, tin, steel, etc. It is mostly on copper on which an instrument called the burin traces the lines, which are filled with greasy ink. It is impossible to take a text from relief characters at the same time as an engraved plate, which explains why most of the illustrations in line engraving were usually on a separate sheet of paper in the medical books of the 17th century.

The famous work of Porta on human physiognomy published in 1586 is one of the earliest examples of copper plates in medical books (31). But the advantages of line engraving are best seen in books on pathology. Copper plates can reproduce more exactly than woodcuts the anatomical details. Therefore, this type of illustration was a great help for the development of pathological anatomy and surgical pathology (32). Even minute details of the structure of bloodvessels could be easily represented by the artist of the burin (33).

In the first half of the 17th century the art of illustration underwent a thorough change under the influence of the Plantins, the most important printing house at that time. The title of many medical books represents the portico of a cathedral (34). The bad "architectural" taste was wide-spread, and followed in all European countries. It was quite natural in this century to put a skeleton into the entrance of a cathedral on the title-page of a book dealing with plague (35)!



Copper engraving in the style of the late 17th century from BROWNE'S *Treatise of the muscles* (London, 1681). The dissected nobleman resembles Louis XIV.



Copper plate with the "three Graces" of Berrettini from his *Tabulae anatomicae* (Roma, 1741).

About the middle of the 17th century, the technic of copper engraving reached its perfection. Surgical scenes in the Dutch genre style (36) are as good representatives of this technic as the famous copper plate in a book of Bartholinus showing his first observation of the horse-shoe kidney (37). This was the era of the foundation of the first medical societies, and the first medical periodicals. These oldest medical journals used illustrations printed from copper plates (38), some of them showing various technical features of the art of copper engraving (39). Good anatomical design and good reproductive technic characterizes the fundamental work of F. Mauriceau on obstetrics and gynecology (40). At the end of the 17th century, line engraving for medical book illustrations was firmly established (41), and even the popular fugitive sheets, the "extras" of those days, were illustrated with

tolerable copper engravings (42) as shown by a broadside published on the occasion of the birth of the Augsburg quadruplets.

At the end of the 17th century there arose a divergence from scientific accuracy, and a tendency toward affectation. Browne's anatomical book, which may be taken as a connecting link between the 17th and 18th centuries, is a good example of perfect engraving technic and correct drawing, which however shows the decadence and coquetry of the French and English Courts. In a German and two English editions of his anatomical plates we find French and English noblemen, with their arm muscles dissected, sitting or standing on pedestals in beautiful gardens. It is not difficult to recognize in one of these figures Louis XIV himself (43), or the grand dames of the French Court, while it is rather interesting how the engraver of the German edition, by changing the scene of the accessory background, makes a "sailor's wife" from a "farmer's daughter" of the English edition of Browne's atlas (44, 45).

In the early part of the 18th century, more and more etchings are seen in the medical books. In etching as the name implies the line is obtained by corroding or "eating" the plate with some acid or mordant. The metal plate is covered with a thin layer of some resinous mixture, the design transferred to this etching-ground, the lines opened up with the etching-needle, and, thereafter, the mordant applied. This method allowed greater elasticity than engraving with a stiff cutting instrument, and it rendered medical illustrations more exact, and at the same time more artistic. Strikingly good etchings can be found in Morgagni's "Adversaria Anatomica" (46), while in Colombani's work on bloodletting the art of etching and the superimposed plates of the female figure are of a quite inferior quality (47). The illustrations in the surgical work of Garengot, French military surgeon, are elegant, and strike us with all the charm of a Watteau or of a Boucher (48).

Since the end of the 17th century the size of anatomical atlases was increasing. More and more large books in folios and elephant folios were published, and the large size of the paper gave good opportunity for the development of the art of medical book illustration. Bidloo's anatomy contains a beautiful portrait of Cowper, the editor, executed in mezzotint, which is a special tone-process of copper engraving (49). The pompous anatomical atlas of J. J. Manget was illustrated with the engravings of J. G. Seiller, of Schaffhausen (50). A manuscript and hand-drawn anatomical atlas of Fotherby shows how these folio atlases were planned (51).

While Berrettini's anatomical plates are still showing the Italian style, and the pose of his three skeletons reminds us of the three Graces

(52), there began a movement among medical book illustrators and publishers of getting rid of the affectation in art. It was the merit of Albinus to make the first step towards anatomical accuracy without discarding elegance of design (53). He was soon followed by others. In Camper's valuable work on pathological anatomy the author himself took the pencil to draw the nearly life-size figures (54). The plates in the book of Mascagni show a fine and careful workmanship, and a faithful and truly masterful representation of the lymphatics (55).

Perfect anatomical drawing became the ideal of medical book illustration, which found able support in the Sandiforts, of Leyden (56). More and more details were left off from the figures, and, at the end of the 18th century Soemmering, professor in Cassel, Germany (57), Camper in his anthropological work, and Lavater (58, 59) reduced the human body to mere outlines. Outlines were also inserted as supplements to each finished plate of the large folio atlases in the beginning of the 19th century. Many of these atlases such as Caldani's anatomy (60), Hunter's anatomy of the pregnant uterus (61), or Tiedemann's atlas of the uterine nerves with figures of Prof. Roux, are perfect in their technic and exact in their anatomy (62).

At the end of the 18th century it became more and more common that the anatomical and surgical illustrations were made by physicians who had a talent for drawing. Some of the drawings of these 18th century medical artists are in the possession of the Army Medical Library (63, 64), among them the excellent water colors of Sir Charles Bell. The two great English surgeons, John and Charles Bell, made their own beautiful illustrations. John Bell, moreover, was not only a master of the pencil, but also a good engraver and etcher. Some of his engravings remind us of the style of an Edgar Allen Poe (65) (66) (67). The drawings of Charles Bell reveal a great artist, who could put as much passion into a simple illustration intended to introduce medical students into the art of anatomical dissection as the great masters of the renaissance into their paintings of the Crucifixion (68). In Cheyne's book, Charles Bell's water colors are reproduced by a perfect technic of etching (69).

D. *Era of Color-prints.* Color-printing was first attempted by Le Bon, the inventor of the three-color process. His method was then used by Ladmiral in Holland, and by the family of Gautier D'Agoty in Paris. D'Agoty, in 1745, published an elephant folio atlas of anatomical illustrations. His figures are drawn in a light-spirited French style, which does not forget to put a ribbon into the coquettish girl's hair whose en-

tire back is skinned to show the muscles. These large figures as well as the glossy appearance of the illustrations, which at the first glance have a great resemblance to oil paintings, not to mention a certain amount of piquance in the figures, were apt to fascinate the layman, but the



One of the many beautiful drawings of Sir Charles Bell, brother of John Bell, in his "A System of Dissection" (Edinburgh, 1799-1801).

eyes of a critical observer will soon discover the arrogance of the artist. The technic itself was not suited for delicacy or exactness (70, 71). Others attempted to paint copper plates by hand as shown by the anatomical atlas of Cowper (72).

Probably the earliest attempt to use color-print for microscopical illustrations is found in Bleuland's work on the lymphatics published in 1785 (73). At this time, certain branches began to make great advances in medicine, such as ophthalmology and dermatology. Both sciences have a special demand for colored illustrations. Since the color-print was not yet perfected, Beer, ophthalmologist in Wien, published an atlas of copper plates colored by hand after the impression of the book (74).

At the beginning of the 19th century, the technic of color-printing improved, and it became possible to reproduce skin diseases in colored aquatints. These early dermatological atlases such as that of Martens are full with stiff drawings in unnatural colors (75). In 1812, however, English technic of color-printing produced such excellent illustrations as found in Farre's book on the diseases of the liver (76). The aqua-

tint plates in Bright's classical treatise of kidney diseases belong to the most beautiful illustrations ever to find their way into pathological anatomical books (77). In Hooper's "Morbid Anatomy of the Uterus" pub-

lished in London, 1832, the aquatints are so perfect that they can hardly be distinguished from water-colors (78).

In France, and in Belgium color-print from copper plates became the commonest method of medical book-illustration. Many ophthalmological, dermatological and pathological works were luxuriously illustrated. Plates of the Chalcographie Royale in Bruxelles designed and reproduced by the students of this institute decorate the book of Alibert, French dermatologist (79). In Devergie's atlas of venereal diseases the figures were made after wax models so that they are somewhat stiff and their colors are unnatural (80). At the same time Germany produced Ammon's monumental ophthalmological work with many color-prints (81), but it was France where medical color-print reached its utmost perfection owing to the artistically minded Baillièrè publishing house.

The Baillièrès published Rayer's dermatological atlas full with excellent etchings in color (82), the pathological atlas of Auvert in which the color-prints were made from two copper plates, and finished by hand. The illustrations of this atlas were originally painted by Shikhtegolev, and engraved by Oudet, and others (83). With the same technic was produced Sichel's "Iconographie ophthalmologique" characterized by extreme beauty (84). The technic of color-print from several copper plates reached the peak of its development in Hermann Lebert's work on pathological anatomy published by the Baillièrès. This is the most important product of the illustrated medical literature (85). Since dermatology is a science of colors, works on skin diseases offered always the best opportunity to the masters of color-print of showing their craftsmanship as seen in Cazenave's atlas of skin diseases in which the illustrations bring color and design into harmony (86).

E. *Era of steel and lithography.* Meanwhile, from the end of the 18th century on, there developed a tendency to make medical illustrated books as cheap as possible. One solution of this economic problem was to replace copper by a cheaper metal in the engraver's shop. Though the illustrations were still mostly copper plates in the first decades of the 19th century, steel plates became more and more common. Around 1840 steel engraving and etching in illustration of medical books was firmly established (87). Ramsbotham's textbook of obstetrics has some 90 well-drawn illustrations reproduced from steel plates; the first of them showing a man and woman represents the early Victorian style characteristic for the time and for the country (88). Steel remained the chief metal of the illustrator until engraving was entirely replaced by the photomechanical processes in the nineties (89).

A new reproductive method, the lithography, became, however, the real solution of the economic problem of book illustration. Lithography was invented in 1798 by Senefelder at Munich. The center of early lithography was Germany, from where it was introduced into the United States in 1828. The first lithographic illustrations in black-white were tolerably good (90), especially if the drawings were made by an artist (91). The invention of lithography almost coincides with the highest development of color-print from copper plates, which was a great rival of the new reproductive process. Attempts were made, therefore, to have lithographic illustrations in colors, and soon chromolithography was invented (1837). The first products of chromolithography in Germany were below the average as seen in Behrend's atlas, which is full of distorted figures in lifeless colors (92). In the anatomical atlas of Sarlandière published in Philadelphia in 1835 the coloration was done partly by lithography, partly by hand (93).

The art of chromolithography was improved in France, which produced Cruveilhier's atlas of pathological anatomy, a monumental work, in which the different methods of medical illustration are excellently combined. The figures are natural, the colors good, and both the etching and the lithographic technic perfect (94). It was again to the credit of dermatologists to show the advantages of this new art of illustration. In Hebra's dermatological atlas chromolithography reached the highest grade of its development. This famous product of the Vienna School of Dermatology has figures originally painted by Dr. A. Elfinger and Dr. Heitzmann, Hebra's assistants. All figures have an excellent design and a good color effect (95). Each plate in the atlas has a black-white outline. Many of our more recent dermatological atlases are but parodies of this giant of the book-illustrating art (96).

F. *Era of photography.* The further development of medical book illustration and the gradual transition from drawing to photography can be best followed by studying the plates in the volumes of Virchow's "Archives of Pathology" (97). In the fifties of the 19th century, these plates are still drawings reproduced by lithographic technic, black in the style of steel plates, or in color. In 1863 already we find photographs reproduced by lithography. About 1870 it became usual to mount original photographs on plates.

Photolithographic plates and original photographs make out Bourneville's "Iconography of the Salpêtrière" published in 1877 (98). Delafield's microscopical atlas shows all the advantages and disadvantages of microphotograms, which contain too much of the tissue structure (99). Yet the demand for exactness was so great at the end of the 19th century that nobody cared for the art of medical book

illustration. Obstetrical atlases were produced with stereoscopic photographs (100), frozen sections of cadavers were reproduced by photography and photoengraving (101), clinical atlases were published full with nice heliogravures; and by photographs arranged in a series book-illustrators were able to imitate pathological types of gait as in Curschmann's clinical atlas (102).

In 1902, Bumm, German gynecologist and obstetrician, literally made a sensation with his beautiful textbook in which the very plastic black-white illustrations were drawn by the author himself, the drawings completed by the artist Albrecht Mayer, and reproduced by photoengraving (103). Bumm's style of medical book illustration was followed by other illustrators such as Benno Elkan in a textbook on anatomical dissections (104). Many illustrations related to microscopical anatomy are still hand-drawn (105), and our best atlas of tropical diseases contains the water-colors of Fritz Skeel (106), but original drawings are nowadays less and less frequently met with.

The methods of reproduction have also changed completely. Woodcuts, copper plates with line engraving and etching together with the massive and expensive atlases have almost completely disappeared. Direct photography is employed for illustrating thousands of medical books. In the 20th century the methods of chromophotographic reproduction were developed. Jacobi's dermatological atlas contains many pictures of excellent moulages from various clinics. These colored illustrations were made by "eiochromy" (107). Another technic of chromophotography, the "Uvachrome" method, was invented by Dr. Traube and first used for the illustration of an atlas by Zumbusch (108). Our modern textbooks on surgery, gynecology, urology, etc., are full with more or less good photographs in color (109). In this century of photographic illustrations, artistically decorated medical books are considered as curiosities or de-luxe works and there are very few medical authors (one of them Jayle, chief of the Gynecological Department of the Broca Hospital in Paris), who can say with pride that there is not a single photograph in their work (110).

Today, the fanciful is abandoned for the exact, the dream for the truth, the superfluous and the charming for the necessary and the dry. Only a new renaissance could resuscitate the now dead art of medical book illustration.

2. LIST OF EXHIBITED BOOKS AND ILLUSTRATIONS

1. Reproductions from medieval manuscripts as Ms. Sloane 6 of the British Museum, etc.
2. Position of fetus in utero; reproduction in color from No. 190 of the Thotts collection.

3. 14. century leechbook; original in Army Medical Library.
4. "Bloodletting man"; 15. cent. parchment leave in the Library.
5. *FERRARIO, Giovanni Matteo (De Gradibus)*. Practica. Milano, 1472.
6. *MONDINO, de Luzzi. Anothomia*. Padua, 1484.
7. *MACER, Floridus*. The virtutibus herbarum. Paris, 1490.
8. *ABU MASHAR*. Flores astrologiae. Venezia, ca. 1500.
9. *MONDINO, de Luzzi. Anothomia*. Leipzig, ca. 1493.
10. *KETHAM, Joannes*. Fasciculus medicinae. Venezia, 1495.
11. *MAIOLUS, Laurentius*. De gradibus medicinarum. Venezia, 1497.
12. Herbolarium. Venezia, 1499.
13. Heures à l'usage de Rome. Paris, 1501.
14. *DESPARS, Jacques*. Summula super remediis ex Mesue libris. Lyon, ca. 1500.
15. *BRUNSCHWIG, Hieronymus*. Haussapoteck. Augsburg, 1545.
16. *DURER, Albrecht*. Vier Bücher von menschlicher Proportion. Nürnberg, 1528.
17. *GERSSDORFF, Hans*. Feldtbuch der Wundartzny. Strasbourg, 1517.
18. *ABUL HASAN AL MUCHTAR BEN BOTLAN*. Schachtaffeln der Gesundheit. Strasbourg, 1533.
19. (*VOGTHERR, Heinrich*). Sechretbuchlin des Harns. Strasbourg, 1538.
20. (*VOGTHERR, Heinrich*). Anothomi eynes auffgethonen augs. Strasbourg, 1539.
21. *HOLL, M. & SUDHOFF, K.* Des Andreas Vesalius sechs anatomische Tafeln vom Jahre 1538 in Lichtdruck. Leipzig, 1920.
22. *ESTIENNE, Charles*. De dissectione partium corporis humani. Paris, 1545.
23. *BIBLIOTHEQUE NATIONALE*. Collection de chirurgiens grecs avec des-sins attribués au Primate. Reproduction du manuscrit latin 6866. Paris, 19.
24. *LYCOSTHENES, Conrad*. Prodigiorum ac ostentorum chronicon. Basel, 1557.
25. *MATTHIOLUS, Petrus Andreas*. Commentarii in Dioscoridis de medica materia. Venezia, 1558.
26. *BARTISCH, Georg*. Augendienst. Dresden, 1583. (First edition.)
27. *DELLA CROCE, Giovanni Andrea*. Chirurgiae universalis opus absolutum. Venezia, 1596.
28. *FABRICIUS HILDANUS*. Wundartzney. Hanaw, 1652.
29. 30. Two 17th century books: De nuce vomica and Metoposcopia. (Hier. Cardanus.)
31. *PORTA, Giambattista*. De humana physiognomia. Viscus Aquensis, 1586.
32. *BAUHIN, Caspar*. De hermaphroditorum monstrosorumque partum natura. Frankfurt, 1614.
33. A 17th century book on bloodletting. (Castellani.)
34. *CABRIOLUS, B.* Ontleeding des menschelycken Lichaems. Amsterdam, 1633.
35. *BARBATUS, Bartolomeo*. Il contagio di Padova. Rovigo, 1640.
36. *BEVERWYCKS, Job. van*. Schat der gesontheyt. Amsterdam, 1660.
37. *BARTHOLIN, Thomas*. Historiarum anatomicarum rariorum centuria. Amsterdam, 1654.
38. *ZODIACUS medico-gallicus*. Transl. from French. Geneva, 1680.
39. *SCULTETUS, Johannes*. Armamentarium chirurgicum. Leyden, 1693.
40. *MAURICEAU, Francois*. Traité des maladies des femmes. Paris, 1683.
41. *BLANKART, Stephen*. Collectanea medico-physica. Amsterdam, 1680-1688.

42. *Warbafftiger Bericht* (etc.). Augsburg, J. Koppmayer, 1683.
43. 44. 45. *BROWNE, J.* A complete treatise of the muscles (etc.). London, 1681; also another edition. London, 1683; also German edition. Berlin, 1704.
46. *MORGAGNI, Giambattista.* Adversaria anatomica omnia. Patavii, 1719.
47. *COLOMBANI, G.* Il tutto ristretto (etc.). Venezia, 1724.
48. *GARENGEOT, R. J. C. de.* Chirurgia practica. Berlin, 1733.
49. *COWPER, William.* The anatomy of human bodies. Oxford, 1697.
50. *MANGET, J. J.* Theatrum anatomicum. Geneva, 1717.
51. Original manuscript by *FOTHERBY* with drawings. 1729.
52. *BERRETTINI, Pietro.* Tabulae anatomicae. Roma, 1741.
53. *ALBINUS, B. S.* Icones ossium foetus humani. Leyden, 1737.
54. *CAMPER, Pieter.* Demonstrationum anatomico-pathologicarum liber (etc.). Amsterdam, 1760.
55. *MASCAGNI, Paolo.* Vasorum lymphaticorum corporis humani historia (etc.). Siena, 1787.
56. *SANDIFORT, Eduard.* Museum anatomicum Lugduno-Bataviae descriptum (etc.). Leyden, 1793.
57. *SOEMMERING, Samuel Tb.* Icones embryonum humanorum. Frankfort, 1799.
58. *CAMPER, Pieter.* Redevoeringen (etc.). Utrecht, 1792.
59. *LAVATER, J. H.* Elémens anatomiques (etc.). Basel, 1797.
60. *CALDANI, L. M. A.* Icones anatomicae. Venezia, 1801-1813.
61. *HUNTER, William.* Anatomia uteri humani gravidis. Impression from the original plates. London, 1815.
62. *TIEDEMAN, Friedrich.* Tabulae nervorum uteri. Heidelberg, 1822.
63. *COXE.* Original anatomical drawings. End of 18th century.
64. *MAY.* Original anatomical drawings. 1786.
65. *BELL, John.* Engravings explaining the anatomy of the bones (etc.). Edinburgh, 1794.
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BUILDINGS FOR THE ARMY MEDICAL LIBRARY

By MAJOR EDGAR ERSKINE HUME, *Medical Corps, U. S. Army*
Librarian, 1932-1936

PRESIDENT MONROE made the Army Medical Library possible when, in 1818, he appointed Hospital Surgeon Joseph Lovell of Massachusetts to the office of Surgeon General of the Army. Lovell, in the year 1836—we do not know the exact date—began a collection of books for the use of his officers and himself. Reference texts they were, mostly, with some of the medical classics of the day. Probably at first there were hardly more than a five-foot shelf of books such as President Eliot of Harvard chose for his Harvard Classics. Certainly there was nothing requiring a special building: probably even a special room was not considered necessary. (Cf. *Med. Rec.*, 1880, XVII, 298-9.)

In 1836 the War Department, with its several bureaux and offices, among them that of the Surgeon General, was in the building now recalled as the "old" War Department. It was a brick structure occupying the northern part of the site of the present State, War, and Navy Building at Pennsylvania Avenue and Seventeenth Street. After a still older War Department, on the south side of Pennsylvania Avenue between Twenty-first and Twenty-second Streets, was burned in 1801, there was adopted a plan for several public buildings near the White House. The War Department was one of these four brick buildings, alike in design, the others being the State, Treasury and Navy Departments. An excellent picture of the "old" War Department is given in Ingersoll's History of the War Department (1879). This building was completed in 1820, or rather reconstructed after it was burned by the British Army in 1814. The building was used until it was replaced in 1888 by the present State, War, and Navy Building. Indeed, the construction of the latter was so slow that the "old" War Department was used even after the south part of the new building had been finished and was occupied by the State Department. The State, War, and Navy Building appears to us as a pretty poor bit of architectural design, but when it was built it was hailed as a gem, "occupying more ground than any other building in America."

While the Surgeon General had his offices and his library in the "old" War Department, at least for a time, the books that formed the nucleus of the present collection were not kept in the State, War, and Navy Building. Like all Governmental buildings, this one, for all that it was America's largest, was found before long to be too small. So offices and bureaux were, one after another, given quarters elsewhere. The Surgeon General's

Office, accordingly, was, from 1865 to 1887, crowded into rented rooms over the old Riggs's Bank, in Pennsylvania Avenue nearby, at the corner of Fifteenth Street, the site of the present Riggs National Bank. Billings had been appointed Librarian and had embarked on his undertaking to gather the greatest collection of books ever brought together. And there was no room for the volumes over Riggs's Bank. Here, among other official business, all new accessions in the way of books, pamphlets, and theses, were ticketed and catalogued, after which they were sent to the Library Hall in Ford's Theater in Tenth Street. This melancholy scene of President Lincoln's assassination was, by that time, used by the War Department, largely as a storehouse. So small were the quarters over Riggs's Bank that the boxes of books had to be opened in the back yard.

Billings, in building up his collection, had not failed to acquaint the medical profession of the country with the imperative need for an adequate building. Already, in 1880, Congress had made appropriation for the printing of the Gargantuan *Index Catalogue*, and medical men found it exasperating to read of the gems contained in the Library of the Surgeon General's Office, and yet be told that they were all boxed and inaccessible to readers.

Executive Document No. 12, Senate, First Session, 48th Congress, gives us the story of the building now occupied by the Army Medical Library. President Arthur transmitting to Congress a letter of the Secretary of War, urged that a suitable fireproof building be erected for the Library and Museum. The Secretary of War, Mr. Robert T. Lincoln, "Father Abraham's" son, called attention in his letter, dated December 13, 1883, to the several times the matter had been brought before Congress. He approved and forwarded Surgeon General Robert Murray's estimates and plans. These recommendations were backed by an imposing array of documents reflecting the opinion of the country's leading medical men. One of the most convincing of these was a letter from Professors Samuel D. Gross of Philadelphia, Austin Flint (Senior) of New York, and Oliver Wendell Holmes of Boston, to the American Medical Association on the subject. There were no more famous medical men in the country than these three. They wrote:

Sir: The undersigned, members of the medical profession, desire to call the attention of the association to a subject of great importance, as they believe, to the profession and to the public welfare.

There has been formed at Washington, under the direction of the Medical Department of the Army, a museum of military medicine and surgery, and in connection with this a medical library, each of which is believed to be the largest and best of its kind in the world.

The building in which these invaluable collections are stored, collections which can never be replaced if destroyed, is insecure, not fire-proof, in the midst of highly inflammable buildings, and overcrowded. At the close of the last session of Congress, too late for action, a bill appropriating funds for a fire-proof building, of which a copy is appended herewith, was reported. It appears to the undersigned in the highest degree desirable that this bill should become a law at the next session of Congress, and to further this end that the physicians of the United States should explain to the Senators and Members of Congress of the districts and States to which they belong the great importance of these collections of books and specimens, the propriety of granting the funds necessary for their maintenance and preservation, the inexpediency of separating them or removing them from the management under which they have been so successfully conducted, and the necessity of a fire-proof building, that they may be handed down safely to coming generations.

The library now contains 70,000 volumes and 66,000 pamphlets. The Army Medical Museum contains over 20,000 specimens, illustrating military surgery and medicine. The community, and probably many of the profession, are hardly aware of the great expansion of medical literature within the last thirty or forty years. When one of the undersigned drew up the first report on medical literature, read before the association at the meeting in Baltimore in the year 1818, there were not as many as 25 medical periodicals published in the United States. There are now 117. A similar increase has taken place in other countries. When it is remembered that the least valuable of these periodicals may contain new and valuable facts not to be found elsewhere, and that such facts are made accessible to practitioners all over the country, by means of the admirable *Index Medicus*. The value of such a storehouse of medical information is sufficiently obvious. It is very important that the museum and the library should be kept together, inasmuch as they mutually illustrate each other to a large extent. The building containing both would be a great center of attraction for physicians and surgeons from every part of the country; and not from this country only, but from all civilized regions of the earth. During the year 1881, no less than 40,000 persons visited the museum.

The formation of this great public library has acted as a stimulus to the establishment of medical libraries in many other cities—in Philadelphia, New York, Worcester, Providence, Baltimore, Buffalo, Saint Louis, Cincinnati, Brooklyn, and elsewhere.

As regards the library, it should be urged that it is for the benefit of medical education, and of the medical profession throughout the country, which means, let it not be forgotten, for the benefit of all who come under the treatment of physicians. The physicians of the country appeal confidently to the General Government to lend its aid in helping on the cause in which the common good is so deeply involved. An educated and enlightened medical profession means a great saving of human life and a great diminution of human suffering.

To be equal to what should be expected of an institution equipped by the nation for the needs of the nation we believe the following measures should be adopted:

The library should receive promptly every medical book, journal, or pamphlet published in the world, for which an annual appropriation of \$10,000 would be required.

The museum should have, in addition, an annual appropriation of at least \$5,000.

The funds required for completing the index-catalogue, which is the handle of that great civilizing instrument, the library, should be promptly provided.

A fire-proof building of ample dimensions, for the proper management and safe preservation of the inestimable treasures already collected, and to increase with every succeeding year, should, without delay, be furnished by the General Government.

S. D. GROSS
AUSTIN FLINT
O. W. HOLMES

To the *President of the American Medical Association.*

These recommendations were adopted by the American Medical Association at its thirty-fourth annual session at Cleveland, June 5-8, 1883, and appropriate resolutions were prepared. The Committee on Public Buildings and Grounds of the House of Representatives of the Forty-seventh Congress, Second Session, February 28, 1883, reported favorably on the matter. They explained that the books were still kept in Ford's Theater, and continued:

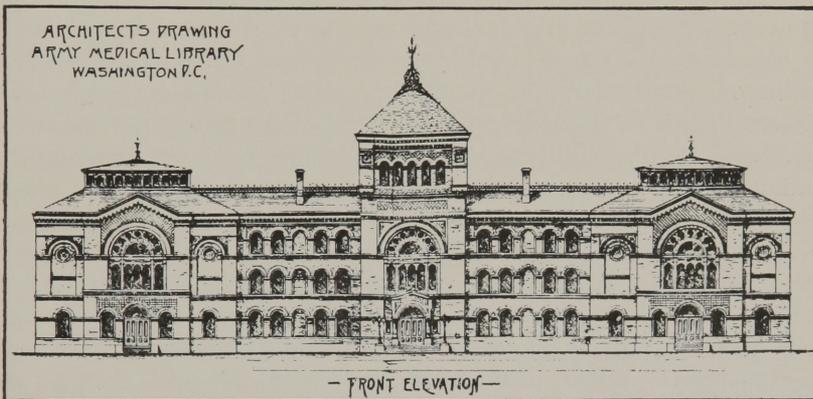
“The building in which the greater part of these collections are stored is an old theater that was built in about nine months. It is at present in a very shaky condition. The back wall is far out of plumb, and probably if it had not been relieved by iron columns, the whole building would have fallen. The north wall is also in bad condition. The roof is not fire-proof. Buildings in the immediate vicinity are frame; some of them shanties. The danger from fire is, therefore, very great, and fires have already broken out, not in the building itself but in the immediate vicinity, and the Government watchman in charge of this building discovered the fires and put them out before they spread. . . .

“The collection of records, books, and museum specimens stored in this building, and in immediate danger of destruction, are of great importance. The library collection is the largest and best collection in the world at the present time. It has grown up in the last fifteen years, partly through regular appropriations made by Congress, but very largely through voluntary contributions made by physicians all over the country. Every day books, pamphlets and papers contributed by physicians are received from different parts of the country. The library

now contains 70,000 volumes. It receives every medical journal and all the medical transactions published in the country. . . .

“The medical profession throughout the country have presented to the committee a mass of testimony commending the unequalled collections, both of the library and the museum, and have earnestly requested that suitable provision be at once made for their preservation. It would be utterly impossible to replace them if lost, and equally impossible for private enterprise or individual effort to collect and preserve medical and surgical treasures of such vital importance to the people of our own and of other lands.”

The American Medical Association, through its committee, consisting of Drs. Gross, Flint, D. W. Yandell of Louisville, T. G. Richardson



of New Orleans, and H. F. Campbell of Augusta, Georgia, memorialized Congress anew and, finally convinced, that body appropriated \$200,000 for the new building “to the joy of every physician in the land.” The sketch of the building, as included in the Senate Document quoted is here reproduced. The construction followed the plans without change.

The construction of the building required some 30 months, and during this period the books were still unavailable to readers. Even after the Library building was nearly finished, volumes had to be placed in piles on the floor as the steel stacks were not yet built. But the medical profession was satisfied to know that the goal was in sight. *Medical News*, in an editorial of October 1, 1887, said: “It is very satisfactory to know that the treasures of the Library and Museum will soon be not only out of the dangerous position in which they have heretofore been placed, but also in light and airy rooms, where they can be properly displayed and classified, and thus be most interesting and useful.”

The building now in use needs no description here. It is located at

the corner of Seventh Street and Independence Avenue (formerly called B Street), S.W., just east of the old National Museum. The Library Hall, measuring more than 130 feet in length and about half that wide, contains therein book-stacks, tables for readers, portrait collections, etc. In 1906 the stacks were enlarged on account of the increasing number of books. This increase of stack space was, of course, at the expense of the tables for readers.

The Museum was completely installed by February 15, 1888, and the books of the Library were finally arranged not long thereafter. In the following September the Congress of American Physicians and Surgeons met in Washington, and Billings, its president, thought it a capital opportunity to show the building to the medical profession. The gathering was a memorable one. The learned societies and universities of the world were represented. The principal address was by Billings himself, one of the best he ever delivered. Other speakers were Dr. R. A. Kinloch of Charleston, South Carolina, Sir William MacCormack of London, Dr. William Pepper of Philadelphia, and Prof. Friedrich von Esmarch of Kiel, noted German military surgeon and uncle-in-law of the Emperor William II. There is not space to list all the noted guests, but among them were: Prof. Thomas Annadale of Edinburgh; Sir David Ferrier, Dr. Arthur E. Durham, Sir Frederick Eve, Dr. William Gay, Dr. Grailey Hewett, Sir Victor Horsley, Dr. William M. Ord, Dr. William O. Priestly, Dr. Philip H. Pye-Smith, Dr. Arthur E. Sansom, and Sir Spencer Wells, Baronet, all of London; Mr. Reginald Harrison of Liverpool; Surgeon-General Robert Harvey of the Indian Medical Service; Sir William Sinclair of Manchester; Prof. Rafael Lavista of Mexico City; and Drs. A. B. Atherton, James C. Cameron, J. W. Rosebrush, and Francis I. Shepherd of Canada.

The Americans who attended likewise represented the best of the profession. The list included such names as: Ashhurst, Barker, Bowditch, Bradford, Busey, Cabot, Councilman, DaCosta, Dana, Fitz, Gibney, Samuel D. Gross, former Surgeon General William A. Hammond, Howell, Janeway, Howard A. Kelly, King, Lane, Loring, Alfred L. Loomis, Lusk, Hunter McGuire, Newell Martin, Morrow, Morton, Shakespeare, Marion Sims, Stelwagon, Solis Cohn, Vance, and Welch.

A splendid occasion it was and the visitors and the Library both drew inspiration therefrom. One is happy to note that one of the visitors of 1887 was present at the recent celebration of the Library's Centenary, when the building of 1887 was almost half a century old. He is Prof. Lewellys F. Barker, who in 1936 attended as the official representative of the University of Glasgow.

So, for well-nigh ten decades, the building that was erected under

Billings's direction has continued to serve its high purpose. But buildings, particularly those of rapidly growing libraries, have a way of outgrowing their quarters. Library construction of fifty years ago did not allow for expansion. Billings himself felt this. The building was hardly open when he wrote to a friend: "I feel more or less satisfied *for the present*. The building is a plain brick structure, light and thoroughly ventilated." Billings's foresight in this, as in so many other things, was accurate. Were Ford's Theater still available as a place of storage, the Library has plenty of material that it would be glad to place there. The stacks of the present building are so full that the engineers have directed that no increase in weight be permitted. Thus books have to be withdrawn when others are added. The overflow now crowds the basement, and every nook and corner of the building.

So there can be little question that a new building for the Army Medical Library is a necessity. Moreover, the present building has been marked for demolition as a part of the general plan for the public parks of the national capital. So another site must be found.

It must not be supposed that the Surgeon General has only recently come to realize that the building of the Army Medical Library has been outgrown. General Gorgas was much of that mind. In 1917 a lengthy report to the 65th Congress on the public buildings of the District of Columbia showed the proposed site of a new building on the south side of the Mall between 4½ and 6th Streets. A building with some 173,000 square feet of floor space was planned. A large oil painting of the proposed building was made by Lieutenant M. L. Bower, and this still hangs in the Surgeon General's Office. But the building never got nearer completion than the hopes of the medical profession and the imagination of the artist.

In 1919 Congress took the first step in the matter of providing an adequate home for the Army Medical Library by purchasing a site adjacent to the Army Medical School at the Army Medical Center in Washington. The Surgeon General feels that if this building be added to the others at the Center, that counterpart of France's Val-de-Grâce will become the more efficient. Thus the great medical institutions of the Army would be near each other—the Army Medical, Dental, and Veterinary Schools, the Walter Reed General Hospital, the Army Medical Library and the Army Medical Museum. Such administrative matters as central heating, police, keeping the buildings open at night, etc., would be simplified. The Center is not far distant from the heart of Washington, for after all the District of Columbia is but ten miles square.

At its meeting of 1933, the American Medical Association, old and

true friend of the Army Medical Library, passed resolutions urging the construction of a new building for the Library—the “Pride of the Medical Profession of America,” as an editorial in the *Journal of the American Medical Association* once called it. After giving something of the history of the institution, the resolutions concluded thus:

Resolved, That the American Medical Association, in annual meeting assembled, respectfully request that the sum of \$2,000,000 be set aside for the purpose of constructing new buildings to house the Army Medical Library and Museum on the site which has already been provided by Congress, and which has now been available for this purpose for more than fourteen years, namely, adjacent to the Army Medical School and the Walter Reed Hospital at the Army Medical Center, Washington, D. C.; and be it further

Resolved, That copies of these resolutions be sent to the President of the United States, the President of the Senate, the Speaker of the House of Representatives, the Chairman of the Appropriations Committee of the House of Representatives, the Chairman of the Military Affairs Committee of the Senate, the Chairman of the Military Affairs Committee of the House of Representatives, and to the Secretary of War. (*J.A.M.A.*, July 1, 1933).

So those of us who have had a hand in the direction of the Army Medical Library feel that the time has at length come when Congress will realize the necessity of making proper provision for the national medical library, the largest collection of medical literature that has ever been gathered together in all history. Provisional plans have been drawn in the Office of the Quartermaster General of the Army, and these should prove a point of departure in the preparation of the final plans for a Library and Museum building that will embody the most advanced concepts. Authorship of such plans is no task for an amateur, nor even for architects skilled in other types of building construction. The hand of the specialist is needed, and a careful study of other modern libraries and museums must be given. The problems of future expansion, air conditioning, central vacuum cleaning facilities, stack elevators, etc., are but a few of those to be studied. There must be an almost complete reclassification of the collections, something impossible now in the present cramped stacks. There must be study rooms for special students, parking space for the automobiles of readers, photographic laboratories capable of producing film, photostat and other forms of reproduction, etc. It has sometimes been felt by Army folk that too often have hasty plans resulted in inadequate buildings. The mighty Army Medical Library has earned the right to the best of buildings furnished with the best of equipment with which to begin its second century of service to the medical profession and to humanity.

Medical Life

The only monthly Journal of Medical History in the English language. New Series established 1920 by Victor Robinson, Professor of History of Medicine at Temple University School of Medicine of Philadelphia. Medical Life is the official organ of the American Society of Medical History. *Editor:* VICTOR ROBINSON, M.D., New York-Philadelphia. *Editorial Staff:* ARTURO CASTIGLIONI, M.D., Trieste, Italy; JOHN D. COMRIE, M.D., Edinburgh, Scotland; FERNANDEZ DE ALCADE, M.D., Madrid, Spain; J. G. DE LINT, M.D., The Hague, Holland; DAVID FRASER-HARRIS, M.D., London, England; WILHELM HABERLING, M.D., Düsseldorf, Germany; MAX NEUBURGER, M.D., Vienna, Austria; ROBERT L. PITFIELD, M.D., Philadelphia, Pennsylvania; HENRY E. SIGERIST, M.D., Baltimore, Maryland; KARL SUDHOFF, M.D., Leipzig, Germany.

NEW SERIES

ISSUE 195

ARMY MEDICAL LIBRARY NUMBER
CENTENARY CELEBRATION

Vol. 43, No. 12.

December 1936

Published by Froben Press, Four Saint Luke's Place (Greenwich Village), New York, N. Y.; single copy, fifty cents; annual subscription, three dollars. Entered as second class matter December 13, 1922, at the post office at New York, under the Act of March 3, 1879.

ARMY MEDICAL LIBRARY NUMBER

The Centenary of the Army Medical Library

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GREETINGS FROM THE
ROYAL SOCIETY OF LONDON
TO THE
ARMY MEDICAL LIBRARY
IN WASHINGTON

1936

GREETINGS FROM THE
ROYAL SOCIETY OF LONDON
to the
ARMY MEDICAL LIBRARY
IN WASHINGTON

THE ROYAL SOCIETY OF LONDON sends hearty congratulations to the Army Medical Library of the War Department of the United States of America on its hundredth birthday.

Great Britain and the United States have for many years been intimately associated in their endeavour to advance Medical Science and have co-operated in friendly rivalry to promote the welfare of humanity. In this great cause the medical profession of America has led the way in many fields of research and achieved brilliant success. The Army Medical Library is a material expression of the untiring devotion of generations of students in every civilized country; it is an instrument indispensable as an aid to progress. May it flourish as a source of knowledge, wisdom and inspiration in the years to come.

The United States and Great Britain have been comrades in arms; may they ever continue to be united in the nobler work of adding to human happiness.

W. H. BRAGG

*President of the
Royal Society of London*

1 November 1936.



FIELDING HUDSON GARRISON

[1870-1935]

Army Medical Library Number of Medical Life

The Centenary of the Army Medical Library

By THE LIBRARIAN

COLONEL HAROLD W. JONES, M.C., U.S. ARMY

On the evening of November 16, 1936, there was celebrated an event of more than usual significance in the life of a famous medical library, for on that date the Army Medical Library joined the company of those worthies who have survived to enter upon their second hundred years.

Born of an inspiration with but a mere handful of books for dower during the administration of President Jackson, and more than probably quite unnoticed by him, this frail child grew into vigorous maturity fifty years ago under the immortal Billings. Today the Institution is but entering into the fulness of its powers, and at the celebration, the many friends and well wishers from all parts of the world sent messages by the hundreds and came to render homage with a warmth of feeling which Time will not efface.

The entire library hall had been cleared for the occasion and seats for more than five hundred persons had been provided. Invitations to more than thirteen hundred institutions of learning, libraries and individuals had been sent out. The hall was decorated with the flags of all nations, the platform covered with Chinese rugs and bedecked with palms and British and American flags. Upon the walls hung two score of portraits of former Surgeon Generals as well as men of note in medicine, men who have made the Library what it is today. Surgeon General Joseph Lovell looked down upon the scene from the east wall for he it was who founded the Library. Over the platform hung the dominating portrait of Billings, largest in the gallery, while across the hall the genial Fletcher gazed at his old friend as if to say, to paraphrase Osler, "Well, we're still working together!"

The Army band was in attendance, and on the walls were hundreds of greetings from almost every country in the world. Diplomas of honor from institutions of learning were everywhere in frames for all to see, and as the meeting was called to order an ambassador, a minister of state, two former surgeon generals and a British physician widely celebrated for his attainments in medicine and in medical history, looked upon such an assemblage of guests noted in bibliography and medical and library science as is seldom beheld.

THE PROCEEDINGS

The Librarian in the chair.

The Invocation by the Reverend Oliver J. Hart, D.D. of St. John's Episcopal Church, Washington, D. C.

THE CHAIRMAN:

General Reynolds, Sir Humphry Rolleston, representatives of learned institutions from many countries and many states, honored guests from far and near. The opportunity of addressing so distinguished a gathering as is here tonight comes but rarely in anyone's lifetime, and as this meeting opens, all those of us who have planned and awaited it must indeed be conscious of a feeling of exaltation that this most important event in the history of the Army Medical Library has come to be recognized in a manner so eminently fitting. From a small collection of books housed in 1836 within a single room upon a street as yet innocent of paving, the Library has now grown until it owns to near a million items, and in its Index Catalogue, now in the sixth decade, it has listed more than three million references, to the great betterment of the medical world. It has a collection of rare medical books and manuscripts of surpassing merit. It has a glorious tradition, an absorbing present, and an abiding faith in its future—it has indeed but one serious worry—it has outgrown the building dedicated half a century ago.

At this time, ladies and gentlemen, I have the pleasure of reading to you a gracious message from one whom we would have been delighted to honor but who could not be present tonight—The President of the United States. The letter reads:

THE WHITE HOUSE

Washington

November 10, 1936

My dear General Reynolds:

I regret that I shall be unable to be present on the evening of November sixteenth at exercises in commemoration of the one hundredth anniversary of the founding of the Army Medical Library.

The years that span the period from the founding of the Library to the present have witnessed profound development in the practice of the art of healing. And during that century the Army Medical Library has attained a position of first rank among the scientific libraries of the world, and has become, I am glad to know, a veritable storehouse of medical learning. Its treasures, I am informed, are available to and are consulted by seekers after truth not only from our own country but from other and far away lands.

I send my hearty felicitations and warm personal greetings to all who gather for the centennial celebration. I trust that as the years pass the Library will grow in the accumulation of its treasures and that its rich resources always will be available to all who work for the betterment of mankind through the prevention of disease and the alleviation of human suffering.

Very sincerely yours,

FRANKLIN D. ROOSEVELT.

Major General C. R. Reynolds, U. S. A.,
The Surgeon General,
War Department,
Washington, D. C.

And now, ladies and gentlemen, it is my happy privilege to introduce to you your host of this evening. Throughout his distinguished career, from his earliest days in the Army even, as I can well remember, he has manifested a lively interest in the Army Medical Library. I have the honor to present to you Major-General Charles R. Reynolds, the Surgeon General of the Army.

GENERAL REYNOLDS:

Sir Humphry and Friends of the Library: It is a pleasure to greet and extend a cordial welcome to you who have assembled to commemorate the One Hundredth Anniversary of the founding of the Army Medical Library. It is also my privilege to acknowledge the cordial sentiments expressed by libraries and other institutions of this country and throughout practically the entire world, many of which have sent personal representatives to attend this meeting.

The hundred years spanning the life of this Library comprise the era during which most of the great advances in medicine have been made. Empirical medicine changed to scientific medicine during this time. It is the era that gave us anesthesia and then our knowledge of bacteriology with its profound effect upon medical science. It demonstrated the actual causation of many infectious diseases, rationalized our therapeutics and gave us specific therapy. Then opened the wide fields of aseptic surgery, preventive medicine, and public health administration. During this time we learned not only of bacteria but of many animal parasites and the role of insects in the transmission of disease. Along with these or following them, came the alliance of physiology with the more exact sciences, particularly chemistry, and the discovery of the roentgen ray and radium. The

medical profession probably contributed more to humanity during this time than throughout the previous centuries of civilization.

Fortunately, the Library had its birth in the dawn of this era and was able to record the literature of this rich period. Those whose vision and labor established and developed this Library have made it a depository or treasure house of classified medical information available to students of medicine throughout the world.

Destiny dealt kindly with human welfare when it raised up John Shaw Billings who more than any other man is responsible for this Library and its Index Catalogue. To borrow words said by Washington Irving of the royal poet of Scotland, Billings has embalmed his memory in the hearts of medical men and floated his name down to after ages in the rich stream of medical literature. His disciples, each an officer of the Regular Army Medical Corps, have carried on the work as librarians in a commendable way right down to the present time. The Army Medical Library is the most precious possession of the Medical Department of the Army, if indeed we can claim ownership of something that really belongs to medicine rather than to individuals or associations. If there is anything sacred to the Medical Department besides its essential honor and sense of duty, it is its stewardship of the Army Medical Library.

He who will address you tonight is a great physician and a great author. His presence emphasizes the importance of this Library and its worldwide usefulness. Physician to King George V, Professor of Physic at Cambridge, formerly President of the Royal College of Physicians and of the Royal Society of Medicine, Surgeon and Rear Admiral of the Royal Navy, and withal a great friend of the Army Medical Library, I have the honor to present Sir Humphry Davy Rolleston.

THEN FOLLOWED:

The Oration Commemorating the One Hundredth Anniversary of the Founding of the Army Medical Library, Washington, by Sir Humphry Rolleston, Bart., G.C.V.O., K.C.B., M.D., Emeritus Regius Professor of Physic, University of Cambridge, England, Sometime President, Royal College of Physicians, London.

The Oration follows.

THE CHAIRMAN:

Ladies and Gentlemen. The Surgeon General is deeply sensible of Sir Humphry's disinterested service to the Library and he takes this opportunity to express his obligation in tangible form.

General Reynolds then presented Sir Humphry with a beautifully engrossed scroll.

THE CHAIRMAN:

Ladies and Gentlemen: It will interest you to know that the learned institutions of the United Kingdom of Great Britain, the Kingdoms of Belgium and Norway, and the Republics of Cuba, France, Germany, Guatemala, and Mexico have designated representatives who are present tonight. Necessarily, due to many factors most of those institutions invited to send representatives were unable to accept, but a large number of greetings have been received. Due to their number it is quite impossible to read these to you, but I can assure you they will be bound and preserved in the Library for future generations to examine. These letters, in many languages, are posted on boards in the Library for your inspection. I think you will agree that they evidence a keen interest in and appreciation of the Index Catalogue which is an international affair. Particularly your attention is invited to the beautiful scroll from the Royal Caroline Institute, the Royal College of Physicians of Ireland, the Medico-Military School of Mexico, the University of Bern, the British Museum, the Bavarian Academy of Science, the Royal Society of Medicine of London, the Royal College of Veterinary Surgeons of London, the Peiping Medical College of China, the Academy of Medicine of Toronto, the Library of the University of Kiel and that from Oxford University, and also the bound congratulatory greeting from the Royal Society of London.

The list of invitations by countries as read by the Chairman appears under the caption: Greetings from Beyond the Seas.

And now, ladies and gentlemen, you are invited to inspect the Library as to its operation with especial reference to the production of the Index Catalogue. A description of the various steps which end in the printing of the Catalogue will be found inside your program. The rooms in which the work is

carried out, are referred to by number. You will find also inside your program some reprints descriptive of the Library. There are a large number of rare books in the cases in the hall outside and there are more at the end of the corridor and many in Room 5. Still more are in the Museum at the far end of the hall. The Museum itself may interest many of you. Finally we shall meet again on the lower floor for refreshment. And so we do now adjourn.

* * * * *

The guests numbered nearly six hundred. On the platform besides the Surgeon General and Sir Humphry Rolleston were seated the Ambassador of Cuba, Dr. Patterson y de Jáuiregui; Dr. Mencia, the Cuban Minister of Health; Lieutenant General von Boetticher, the German Military Attaché; Colonel Torr, the British Military Attaché; Generals Ireland and Patterson, former Surgeon Generals; Miss Margaret Billings, the daughter of Dr. Billings; and Colonels Ashburn, Phalen and Hume, former Librarians.

Seated in places of honor facing the audience and on either side of the platform were the representatives of learned institutions, libraries and medical societies, and included Dr. Anderson, University of Toronto; Professor Apperly, representing the Institute of Anatomy of Canberra, Australia; Dr. Avery, representing the Royal Academy of Medicine of Belgium; Dr. Barker, representing the University of Glasgow; Signor Bonardelli, Counselor of the Italian Embassy, Washington; Dr. Camalier, President of the American Dental Association; Dr. De Bayle, Chargé d'Affaires of the Nicaraguan Legation, Washington; President of the Pan-American Medical Society who also represented the Minister of Hygiene of Nicaragua; Dr. de la Mota, Consul General, Dominican Republic, New York City who also represented the Faculty of Medicine of the University of Santo Domingo; Señor Benito Flores, representing the State College of Pueblo, Mexico; Dr. Francis, Librarian of the Osler Library of McGill University; Mrs. Fielding H. Garrison; Miss Margaret Garrison; General and Mrs. Gilchrist; Dr. Evarts A. Graham, President of the American Surgical Association; Señor Vincent Sanchez Gravito, representing the State College of Puebla, Mexico; Mr. Hassall, who presented the greetings of the Royal Col-

lege of Veterinary Surgeons of London; Mrs. Hume; Don Enrique Lopez Herrarte, Secretary of the Guatemalan Legation, Washington, who represented the Director General of Public Health of Guatemala; Dr. Hoffman, donor of Statistical Collection to Library; Miss Anita Ker, representing the Institute of Biology of Mexico City; Dr. Kerr, delegate of the District of Columbia Medical Society; Dr. Dean Lewis; Dr. Mackall, President of the Bibliographical Society of America; Dr. Malloch, Librarian of the New York Academy of Medicine; Dr. Moll, Pan-American Sanitary Bureau who represented the Director General of Health of Chile; Dr. Munthe, Royal University Library of Oslo, Norway; Surgeon Commander d'Oliveira of the Argentine Navy; Señora de d'Oliveira; Mr. Quintanilla Counselor of the Mexican Embassy who represented Dr. Siurob, Chief of the Health Department in Mexico City; Professor Rice, representing the University of Liverpool, England; Dr. Sigerist, Institute of the History of Medicine of Johns Hopkins University; Dr. Semb, Chief Surgeon of the Municipal Clinic of Oslo, Norway; Dr. Sprigg, President of the Medical Society of the District of Columbia; Dr. James D. Stewart, Librarian and Curator of the Bermondsey Public Libraries and Museum who also represented the Library Association; Mr. Vance, Law Librarian of Congress; the Secretary of the Venezuelan Legation, who represented the Minister of Health and Social Welfare of Venezuela; Dr. White, Superintendent of St. Elizabeth's Hospital, Washington; Dr. Waaler who represented the Royal Frederick University at Oslo, Norway.

Among the many guests who filled the hall were, Dr. Abbot, Secretary of the Smithsonian Institution; Mr. Joseph Adams, Director of Folger Shakespeare Library; Mrs. Ashburn; Dr. Babbitt, Secretary of the American Laryngological Association; Dr. Bachman, Director of the School of Tropical Medicine, New York City; Mr. Ballard, Director of the Boston Medical Library; Dr. Banay, State Hospital of Worcester, Mass.; Miss Barnett, Librarian of the Department of Agriculture; Dr. Beardsley, Secretary of the American Association of the History of Medicine; Dr. Bett, Medical Librarian of the College of Physicians and Surgeons, New York City; Miss Sue Biethan, Medical Librarian of the University of Michigan; Dr. Blackerby, Health Department, Louisville, Ky., Mrs. Blackerby, Woman's

Auxiliary to Kentucky State Medical Association; Miss Blogg of the Welch Medical Library; Dr. Briggs of the Bureau of Standards; Mrs. Briscoe, Librarian of the Medical School of the University of Maryland; Dr. Boles of Philadelphia; Dr. Bocock, Superintendent of Gallinger Municipal Hospital of Washington; Mr. Bowerman, Librarian of the Public Library of the District of Columbia; Dr. Braden, President of Transylvania College, Lexington, Ky.; Dr. Allen Brown of the Veterans Bureau; Dr. Carpenter of Philadelphia, delegate of the American Pediatric Society; Dr. Chamberlin, American Laryngological Association; Dr. Chapman, Superintendent of Sheppard & Enoch Pratt Hospital, Towson, Md.; Dr. Herbert Clark; Mrs. Leila Clark, Assistant Librarian of the U. S. National Museum; Dr. Cogan, Dean of the School of Dentistry of Georgetown University, Washington; Dr. Cohn of the Rockefeller Institute for Medical Research, New York City; Dr. Connor of New York City; Msgr. Corrigan, Rector of Catholic University of America, Mr. Corbin, Librarian of Smithsonian Institution; Mr. Corse, representing Association of Special Libraries and Information Bureaus of London; Dr. Craig, President of the North Carolina State Board of Health, Winston-Salem; Mr. Crispin, Executive Secretary, Philadelphia County Medical Society; Dr. Crowell, President of Gorgas Memorial Institute of Chicago; Dr. Darrach, Delegate of American Surgical Association; Dr. Deibert, President of the Department of Health of the State of New Jersey; Dr. Darlington, American Clinical and Climatological Association; Miss Dondale, Librarian of Albany Medical College; Miss Doss, Zoological Division of the Bureau of Animal Industry; Dr. Douglas, Librarian of Harrisburg Academy of Medicine, Harrisburg, Pa.; Miss Ehlert, Assistant Librarian, Bureau of Animal Industry; Mr. Everett, American Social Hygiene Association; Dr. C. E. Finlay of Havana, Cuba; General Fisher, Arlington, Va.; Dr. Fowler, President of the American Otological Association; Lt. Colonel and Mrs. R. H. Fletcher, Jr.; Dr. Julius Friedenwald; Dr. Harry Friedenwald; Dr. Jonas Friedenwald; Mrs. Ida Frohlin; Dr. Fulton of Yale University; Dr. Walter Freeman; Miss Margaret Garrison; Miss Gay of the American Museum of Natural History; Dr. Ghormley, Secretary of the American Orthopedic Association; Dr. Andrew C. Gillis, Balti-

more; Dr. William Tate Graham, Virginia State Board of Health; Miss Grant, Librarian of Guthrie Clinic Library, Sayre, Pa.; Miss Gould, Walter Reed General Hospital; Lt. Colonel Griswold; Mrs. Griswold (granddaughter of Dr. Robert Fletcher, formerly of this Library); Dr. Hall, Professor of Zoology, U. S. Public Health Service; Dr. Hagner, Delegate of American Association of Genito-Urinary Surgeons; Dr. Harris, Secretary, American Otological Society; Mr. John F. Hayes; Dr. Helmholtz, President, American Pediatric Society; Dr. Hinman, President, American Association of Genito-Urinary Surgeons; Miss Holt, Librarian, Harvard University School of Medicine; Dr. Hiscock, Yale University Department of Public Health; Dr. Hunt, American Neurological Association; Mr. Howson, Librarian of Columbia University, New York City; General Keefer; Dr. King, Secretary, Congress of American Physicians and Surgeons; Dr. Krumbhaar, University of Pennsylvania; Miss Keener, Chief Nurse and Assistant Supt. Army Nurse Corps, Walter Reed General Hospital; Dr. Larkey, Librarian of Welch Medical Library, Baltimore; Dr. Waldo Leland, Harvard University Library; Dr. Lydenberg, Director of the New York Public Library; Mr. Mason, Librarian, George Washington University, Washington; Dr. McPhaul, State Health Officer of Florida; Dr. McKinley, Dean of George Washington School of Medicine; Mrs. McCormack, Woman's Auxiliary to Kentucky State Medical Association, Louisville; Dr. McCoy, Director of the National Institute of Health; Mr. McDaniel, Librarian of the College of Physicians, Philadelphia; Dr. MacNeal, American Association of Pathologists and Bacteriologists; Dr. Edith MacBride-Dexter, Secretary of Health, Harrisburg, Pa.; Dr. Mixter, Secretary, American Surgical Association; Dr. G. Brown Miller, American Gynecological Society; Dr. Mohler, Chief of the Bureau of Animal Industry; Dr. Moursund, Dean of the College of Medicine of Baylor University, Dallas; Mrs. Munthe, of Oslo, Norway; Miss McCann, Librarian of the University of Pittsburgh School of Dentistry; Miss Naylor, Librarian, Academy of Medicine of Northern New Jersey, Camden; Miss Noyes, Librarian, Medical and Chirurgical Faculty of the State of Maryland, Baltimore; Dr. Olesen, Assistant Surgeon General, U. S. Public Health Service; Dr. Orr, Librarian, Winnett Memorial Library,

Lincoln, Neb., the President of the American Orthopedic Association; Dr. O'Leary, President of Georgetown University, Washington; Mr. Parma, Curator of Rare Book Collection, Library of Congress; Dr. Pendergrass, Secretary, American Roentgen Ray Society; Mrs. Phalen; Miss Perkins, Librarian of Worcester Medical Library; Mr. Perley, Division of Classification, Library of Congress; Dr. Paullin, President American Clinical and Climatological Association; Dr. Riley, Director of the Department of Health of Maryland; Commander Roddis, Bureau of Medicine and Surgery, Navy Department; Mr. Roberts, Superintendent of the Reading Room, Library of Congress; Dr. Rugh, American Orthopedic Association; Dr. Ruffin, Washington; Dr. Ruhland, Health Officer of the District of Columbia; Dr. Sandy, Secretary of the American Psychiatric Association; Dr. Schoening, Assistant Chief, Bureau of Animal Industry; Mr. Schneider, Librarian, Catholic University of America, Washington; Mr. Schopp, Insurance Librarian, Prudential Insurance Company, Newark, N. J.; Major Julia Stimson, Superintendent, Army Nurse Corps; Miss Schick, Librarian, Walter Reed General Hospital; Mr. Shatzky, Librarian, New York State Psychiatric Institution; Mr. Scheirer, Surgeon General's Office; Miss Sommermeyer, Librarian, Metropolitan Life Insurance Company Sanatorium; Dr. Strong, Loyola University School of Medicine, Chicago; Dr. Shurly, American Laryngological Association; Captain H. W. Smith, President, U. S. Naval Medical School, Naval Medical Center, Washington; Dr. TeLinde, Secretary, American Gynecological Society; Colonel Tasker; Miss Thompson, Librarian of the Department of Labor; Miss Trask, Rockefeller Institute of Medical Research; Dr. Tucker, College of Medicine, University of Cincinnati; Dr. Vidrine, Dean of the Medical Center, Louisiana State University; Dr. Viets, Boston; Professor Watson who represented the University of Edinburgh; Mrs. Watson, Librarian of the Delaware Academy of Medicine; Dr. Wood, formerly Librarian of the College of Physicians of Philadelphia; Major Narcia, Mexican Army Medical Corps.

Following the examination, by those interested, of the operation of the Library, and the viewing of the large exhibition of rare and interesting books, a description of which appears elsewhere, refreshments were served on the lower floor while the

Army Band played. The concourse of distinguished people, many with decorations about their necks and upon their lapels, and the many ladies present served to enhance the beauty of the scene. It made one a little regretful that on the morrow the palms would disappear, the gay flags would come down, the orchestra would have put its music away, and the Library would again settle down to its work amid the dust of the books. Nevertheless I think the old fellow (if we may call the Library that) has preened himself a bit and let us hope he is thinking about a new spring suit!

**The Oration Commemorating the
One Hundredth Anniversary of the Founding
of the Army Medical Library
Washington**

Sir HUMPHRY ROLLESTON, Bart., G.C.V.O., K.C.B., M.D.
Emeritus Regius Professor of Physic, University of Cambridge, England,
Sometime President, Royal College of Physicians, London.

It is a very high honour as well as a most pleasant privilege to assist at the Centennial of the conception of the Library of the Surgeon-General's Office, United States Army, now containing more than a million items and the largest Medical Library in the world. George Adami (1914) described the "Index-Catalogue" and the "Index-Medicus" as America's greatest gift to medicine, and in his admirable paper "The Centennial of the World's largest Medical Library." The "Army Medical Library of Washington," from which I have freely drawn, Major Edgar Erskine Hume, the late Librarian tells us that Professor William H. Welch not only expressed a similar considered opinion in 1921, but at his last visit to the Library placed it above America's services in connexion with anesthesia, the insect transmission of disease, and the development of Public Health Laboratories.

The transformation of Medicine in America during the last twenty years of the nineteenth century and after was due to several causes: among others to the men of Billings' generation, especially Welch and Osler, to the example set by the Johns Hopkins University and Hospital, to the Library of the Surgeon-General's Office, its "Index-Catalogue" and the "Index Medicus."

The Johns Hopkins Hospital, the Library, its "Index-Catalogue," and the "Index Medicus" were largely the offspring of Billings' energetic initiative.

LIBRARIES

Libraries and Museums are important instruments in medical education and progress. They resemble each other as reservoirs of sound learning gathered from practical experience. This correlation of knowledge, shown by the oldest scientific museum in Great Britain—the Ashmolean Museum (1679) at Oxford—which was under the same roof as the library of natural history and philosophy, and also by the original British Museum (1754) in Bloomsbury, the Natural History part of the Museum being moved to South Kensington and opened in 1881, was confirmed, as regards medicine, by the Army Medical Museum which contains the Army Medical Library.

It may be interesting to note that by his will (1695) Anthony Wood left all his manuscripts and books to the Ashmolean Museum rather than to the Bodleian Library (founded 1598) of which he had been given the free run: was this evidence of ingratitude and in conformity with his difficult temperament, or of an unsuspected broadmindedness?

Another resemblance is that verbal descriptions and illustrations in books and atlases reproduce specimens on the shelves of museums, and conversely complete accounts of such morbid specimens, the latter being "the original documents" (Keith), should include the clinical details.

The earliest repositories of records—the representatives of books—were either in temples because in all civilizations the priesthood has been *par excellence* the learned class, or in palaces, because rulers often patronized literature and art. Chambers for the storage of records in the form of inscribed tablets and cylinders of baked clay were discovered by Sir Henry Layard in 1850 in the Assyrian palaces of the Kings Sennacherib, Esarhaddon and Ashur-bani-pal, going back to B. C. 700. The subsequent history of libraries in ancient Greece, Alexandria, Pergamos and Rome has been discussed by J. W. Clark.

Museums, especially medical museums, were a more modern development. It is true that the first recorded institution to bear the name of "museum" (temple or haunt of the muses)

was that founded at Alexandria about B. C. 300 by Ptolemy Soter (B. C. 367-283); but this did not conform to the modern meaning of the word, for it was an academy or meeting place for learned men (Flower). John Hunter's great collection in the eighteenth century exerted a powerful influence, as shown by the activities in the last century of Sir Astley Cooper (1768-1841) of Guy's Hospital, Sir Benjamin Brodie (1783-1862) of St. George's Hospital in London, by Sir Henry Acland (1815-1900) who from 1845 taught the preliminary medical sciences with the help of a museum at Oxford, and by Sir George Humphrey (1820-96) who adopted the same method in Cambridge. The relative importance attached to medical libraries and museums, has varied to some extent from time to time, no doubt as a result of the enthusiasm of prominent authorities. Physicians have usually turned more to libraries, and surgeons done more for museums, but this is far from being a rigid rule. Rarely has the same man whole-heartedly and equally promoted them both; such, however, were the physicians Sir Hans Sloane (1660-1753), President of the Royal Society and of the Royal College of Physicians of London, whose collections of natural history, objects of virtu (69,352), books (50,000), and valuable manuscripts formed the nucleus of the British Museum, and Sir William Osler (1849-1919) whose generosity to many libraries, especially to his *alma mater*, Montreal, and his advocacy of medical museums is known to all.

About the middle of the last century the formation of museums was more keenly carried out than that of libraries, and may have represented a healthy opposition to mere traditional authority, and have been inspired by a preference for an appeal to the visible evidence or in obedience to John Hunter's admonition to Edward Jenner "Don't think, try." This advice is equally, if not even more, applicable now that functional disorder in medicine has taken a part, formerly almost monopolized by morbid structural change. The use of the experimental method in the elucidation of disease has tended to transfer the illustrations of disease from the pathological museum to the laboratory.

Medical libraries a century ago were generally those of individual medical men and, as in the case of the famous libraries

of Richard Mead (1673-1754) and Anthony Askew (1722-74) in the previous century, were often sold and dispersed after the death of the owners. Those of institutions left much to be desired, as Billings found to his discomfiture in 1860 in the United States. In the seventies of the last century when the Surgeon-General's Library was coming to its second birth and rapid growth, the idea of medical libraries was stirring in North America, and in some instances, such as at Boston, quickened after a somewhat remote conception, and very probably by the activities of Billings.

It is surely quite unnecessary to attempt to preach to the converted on the value and inspiring virtue of medical libraries, for this has been so conclusively set forth by Billings, by Oliver Wendell Holmes (1809-94) at the first opening of the Boston Medical Library in 1878, by Osler in "Books and Men," also at the Boston Medical Library when a new building was opened in 1901, and in 1926 at Cleveland in the charming address "The Doctor and his Books" by Professor Harvey Cushing, Osler's greatest pupil, who could so convincingly have shown here and now how well that tradition has been maintained.

THE ARMY MEDICAL LIBRARY

The layman in the street might be puzzled to explain why and how it came about that the Surgeon-General of an Army, however great, should have such a library as this attached to his office which is devoted more to active organization and orders than to medical bibliography ancient and modern. The answer, clear to everyone here, is the personality of John Shaw Billings of the Surgeon-General's Office and the creator of its library. Originally a small collection of reference books for the use of the Surgeon-General (Joseph Lovell) in his office at Washington, it long remained in a state of suspended animation. In 1840 a manuscript catalogue listed 135 works (228 volumes); at the outbreak of the Civil War (1861) the number of volumes was between three and four hundred; on May 10, 1864, seven and a half months before Billings came on the scene as the first person to be in any way—for he was only nominally not officially—responsible for the books, a printed catalogue showed a total of 1365 volumes; in another printed catalogue dated October 23, 1865, the number had risen to 2258. Growth then became rapid;

in 1868 the sum of eighty thousand dollars left over from the funds of Civil War hospitals was made available for the library, Billings being given discretionary powers; and on June 12th of that year a printed catalogue referred to 6066 volumes, showing that Billings had not lost any time in building up the Library; in 1871 a Catalogue, published in 1872, ran to 454 pages and showed that the number (13,380) had doubled. In 1873 a printed catalogue of 2468 pages in 3 volumes—the first two arranged under the heading of authors only, and the third containing anonymous works, transactions, reports, and periodicals, came out under Billings' direction. The Library then contained 25,000 volumes and 15,000 separate pamphlets. It may be safely assumed that Billings was now steering straight towards the great conception ultimately achieved by the Surgeon-General's Library and its "Index-Catalogue." In 1876 the Library contained forty thousand volumes and as many pamphlets, and in 1895, when he retired, the number had increased to 308,445.

Besides books, pamphlets, the valuable collections of 450 out of the estimated 600 medical incunabula (books printed before 1500), and of Paris theses unrivalled even in their native city, the Library has five thousand portraits of medical men, and a collection of medical autographs, to which Abraham Jacobi and Garrison made generous contributions. The Army Medical Library stimulated beneficial imitation, which charitably began at home, for in 1929 there were 200 medical libraries in the United States as compared with 118 in Europe (Garrison).

From 1865 to 1887 the Army Medical Museum, not a fire-proof building which contained the Library, occupied the old Ford's theatre in which Abraham Lincoln had been assassinated on April 14, 1865. This soon became quite inadequate, and Billings, rising to the occasion obtained funds, Congress appropriating two hundred thousand dollars, for the construction, according to his plans, of the present home of the Army Medical Museum, of which he was also curator, and of the library at the corner of Seventh Street and B Street (now Independence Avenue) S. W. This was successfully carried through in time to receive in 1887 the ninth International Medical Congress held at Washington.

History repeats itself, and the Army Medical Museum (up

till 1922 always called the Library of the Surgeon-General's Office), has now, as happens sooner or later to active libraries, been faced for some time with the impossibility of further expansion on its present site which indeed is now wanted for the further development of Washington (Reynolds). What better way of celebrating the commencement of the second century of the Library could there be than the erection of a new building so urgently needed and so thoroughly deserved?

The following is the list of the Librarians:

- Col. J. S. Billings (1868-95)
- Col. D. L. Huntington (1896-7)
- Surgeon J. C. Merrill (1898-1902)
- Major Walter Reed (1902, died in office)
- Brigadier-General Calvin De Witt (1903)
- Brigadier-General W. D. McCaw (1903-13)
- Col. C. C. McCulloch, Jr. (1913-18)
- Brigadier-General F. A. Winter (1918-19)
- Col. P. E. Straub (1919)
- Major-General R. E. Noble (1919-24)
- Col. J. M. Phalen (1924-27)
- Col. P. M. Ashburn (1927-32)
- Major Edgar Erskine Hume (1932-6)
- Col. Harold W. Jones (1936-)

The average tenure of the first thirteen librarians works out at five years, the extreme being 27 years (Billings) and one year or less in the case of Walter Reed and others. To the high qualifications of his twelve predecessors Major Erskine Hume has paid a graceful tribute. Dr. Beatrix Bickel, who joined the library staff in 1930, was in the following year given the title of chief librarian and is now the first assistant to the librarian.

THE INDEX-CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE

A Library is obviously a great and essential factor in the preservation of knowledge and history. It has, however, been rather pessimistically said that a library is a mausoleum where knowledge lies dead and mummified; this may be real danger unless it is activated and kept alive by a guide to its contents. A library is not complete without a good catalogue, namely one with the double entry of author and subject; and it is obvious that the larger the library the more fully will such a catalogue

afford access to existing knowledge, especially when printed and distributed widely to other libraries. The Army Medical Library is the largest of its kind, and more current periodicals are devoted to medicine than to any other branch of science. As long ago as 1887 the Library of the Surgeon-General's Office obtained annually 700 published medical periodicals exclusive of those devoted to pharmacy and to dentistry. Since then they have become much more numerous; at the end of 1912 the total number of current periodicals was estimated at 1654 (C. P. Fisher); the Library received 1895 annually in 1916, the number fell to 1240 in 1920, but rose to 1925 in 1927 (Garrison, 1929), and now is about 1800. Medical journals vary in their span of life; some are quite ephemeral and there appears to have been a considerable mortality during the World War. Their fluctuating population is compatible with Bulloch's estimate that of the 23,000 items in the "World List of Scientific Periodicals," covering the years 1900-31, 5000 were medical. The bibliographical scope of the Index-Catalogue is therefore phenomenal, and widespread appreciation of its help is graphically shown by the worn state of the original bindings, or by new bindings, of its volumes in the medical libraries of Europe.

How does the Index-Catalogue compare with previous medical bibliographies which Osler (1913) optimistically prescribed as the best "float through posterity," for the authors? Conrad Gesner (1516-65) "the father of bibliography" supplied what was in some respects the model for the "Bibliotheca Osleriana" (1929), hailed by Professor John Fulton "as the greatest achievement of the humanistic movement in medical bibliography." Albrecht von Haller (1708-77), the greatest medical bibliographer of the eighteenth century, dealt with botany, anatomy, physiology, surgery and medicine. W. C. Ploucquet (1744-1814) of Tübingen attempted to provide a complete catalogue of medical literature in his *Initia Bibliothecae medico-practicae et Chirurgicae realis* (1793-7). Robert Watt (1774-1819) of Glasgow, published in 1812 for the guidance of his students at the Royal Infirmary, "A Catalogue of Medical Books." This led to his ambitious and posthumous "Bibliotheca Britannica, or a General Index to British and Foreign Literature" in four volumes in 1824, covering law and other subjects in addi-

tion to medicine, thus reverting to the status of the scholar-physicians in the sixteenth century when medicine and the natural sciences formed part of the equipment of learned men. The labour thus entailed is said to have been responsible for the death of Watt and later of two of his sons. Thomas Young (1773-1829), physicist, Egyptologist, and physician, the most comprehensive genius and man of science who ever entered the medical profession, brought out in 1813 "An Introduction to Medical Literature, including a "System of Practical Nosology." A. C. P. Callisen (1787-1866), a Danish surgeon, in the 33 volumes of his *Medicinisches Schriftstellen-Lexicon* (1830-45) dealt exhaustively with medical publications from the middle of the eighteenth until the end of the first quarter of the nineteenth century. A comic relief to these many-volumed works might be supplied by the "Medical Bibliography" (1834) of James Atkinson (1759-1839) of York who gave up the task after the letter B, and it has been shrewdly suspected that he never had any intention of carrying it further (Ruhrah). It abounds in witticisms after the manner of Sterne's "Tristram Shandy" and has earned for him the title of "a disciple of Rabelais" and as well qualified for residence in the Abbey of Theleme.

Without in any way detracting from the services of these bibliographical fathers it is obvious that the life of a Government Department or public institution is potentially perpetual and not limited by the relatively short span of an individual life. Other medical bibliographers were described by Osler as Lilliputian as compared with the Gargantuan character of the Index-Catalogue.

Among bibliographies that of medicine now takes a very high, if not the highest, place; as so largely responsible for bringing this about, the "Index-Catalogue of the Library of the Surgeon-General's Office," which is beyond any comparison the most exhaustive medical bibliography ever undertaken, and the "Index Medicus" have made the whole medical world especially English-speaking readers, hopelessly insolvent debtors. This far-reaching obligation must be most gratefully, and humbly, acknowledged.

The history of the Index-Catalogue began in Billings' brain from his experience in 1860 when the need for such a bibliogra-

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The number of medical men who have been whole-time librarians of medical libraries is small; but in the United States what may have been lacking in quantity has been more than made good by quality. To three bibliographer-librarians of the Army Medical Library tribute is most justly due—Billings, Fletcher, and Garrison: for, like the history of the world (T. Carlyle), that of this great library is the biography of its great men.

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John Shaw Billings was born on April 12, 1838 in Cotton Township, Switzerland County, Indiana, as the second of the five children, two only surviving infancy, of James Billings (1806-92) and Abby Shaw, a descendant of John Howland, one of the Pilgrims. His father's family, originally Billing, came from the village of Billing in the diocese of Petersborough in the county of Northampton, England. In the middle of the seventeenth century William Billing of Taunton, Somerset, who was a direct descendant of Sir Thomas Bylling or Billing (ob. 1481?), chief justice of the Kings Bench, emigrated to New England. He was a direct ancestor of John Shaw Billings, the final *s* having been added in the eighteenth century in America.

As a young boy Billings worked on a farm of which his father was in charge, but even then he was an omniverous reader and was largely self-educated. By an arrangement, entailing resignation of any further financial help, he secured from his

in 1868 the sum of eighty thousand dollars left over from the funds of Civil War hospitals was made available for the library, Billings being given discretionary powers; and on June 12th of that year a printed catalogue referred to 6066 volumes, showing that Billings had not lost any time in building up the Library; in 1871 a Catalogue, published in 1872, ran to 454 pages and showed that the number (13,380) had doubled. In 1873 a printed catalogue of 2468 pages in 3 volumes—the first two arranged under the heading of authors only, and the third containing anonymous works, transactions, reports, and periodicals, came out under Billings' direction. The Library then contained 25,000 volumes and 15,000 separate pamphlets. It may be safely assumed that Billings was now steering straight towards the great conception ultimately achieved by the Surgeon-General's Library and its "Index-Catalogue." In 1876 the Library contained forty thousand volumes and as many pamphlets, and in 1895, when he retired, the number had increased to 308,445.

Besides books, pamphlets, the valuable collections of 450 out of the estimated 600 medical incunabula (books printed before 1500), and of Paris theses unrivalled even in their native city, the Library has five thousand portraits of medical men, and a collection of medical autographs, to which Abraham Jacobi and Garrison made generous contributions. The Army Medical Library stimulated beneficial imitation, which charitably began at home, for in 1929 there were 200 medical libraries in the United States as compared with 118 in Europe (Garrison).

From 1865 to 1887 the Army Medical Museum, not a fire-proof building which contained the Library, occupied the old Ford's theatre in which Abraham Lincoln had been assassinated on April 14, 1865. This soon became quite inadequate, and Billings, rising to the occasion obtained funds, Congress appropriating two hundred thousand dollars, for the construction, according to his plans, of the present home of the Army Medical Museum, of which he was also curator, and of the library at the corner of Seventh Street and B Street (now Independence Avenue) S. W. This was successfully carried through in time to receive in 1887 the ninth International Medical Congress held at Washington.

History repeats itself, and the Army Medical Museum (up

till 1922 always called the Library of the Surgeon-General's Office), has now, as happens sooner or later to active libraries, been faced for some time with the impossibility of further expansion on its present site which indeed is now wanted for the further development of Washington (Reynolds). What better way of celebrating the commencement of the second century of the Library could there be than the erection of a new building so urgently needed and so thoroughly deserved?

The following is the list of the Librarians:

Col. J. S. Billings (1868-95)
 Col. D. L. Huntington (1896-7)
 Surgeon J. C. Merrill (1898-1902)
 Major Walter Reed (1902, died in office)
 Brigadier-General Calvin De Witt (1903)
 Brigadier-General W. D. McCaw (1903-13)
 Col. C. C. McCulloch, Jr. (1913-18)
 Brigadier-General F. A. Winter (1918-19)
 Col. P. E. Straub (1919)
 Major-General R. E. Noble (1919-24)
 Col. J. M. Phalen (1924-27)
 Col. P. M. Ashburn (1927-32)
 Major Edgar Erskine Hume (1932-6)
 Col. Harold W. Jones (1936-)

The average tenure of the first thirteen librarians works out at five years, the extreme being 27 years (Billings) and one year or less in the case of Walter Reed and others. To the high qualifications of his twelve predecessors Major Erskine Hume has paid a graceful tribute. Dr. Beatrix Bickel, who joined the library staff in 1930, was in the following year given the title of chief librarian and is now the first assistant to the librarian.

THE INDEX-CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE

A Library is obviously a great and essential factor in the preservation of knowledge and history. It has, however, been rather pessimistically said that a library is a mausoleum where knowledge lies dead and mummified; this may be real danger unless it is activated and kept alive by a guide to its contents. A library is not complete without a good catalogue, namely one with the double entry of author and subject; and it is obvious that the larger the library the more fully will such a catalogue

afford access to existing knowledge, especially when printed and distributed widely to other libraries. The Army Medical Library is the largest of its kind, and more current periodicals are devoted to medicine than to any other branch of science. As long ago as 1887 the Library of the Surgeon-General's Office obtained annually 700 published medical periodicals exclusive of those devoted to pharmacy and to dentistry. Since then they have become much more numerous; at the end of 1912 the total number of current periodicals was estimated at 1654 (C. P. Fisher); the Library received 1895 annually in 1916, the number fell to 1240 in 1920, but rose to 1925 in 1927 (Garrison, 1929), and now is about 1800. Medical journals vary in their span of life; some are quite ephemeral and there appears to have been a considerable mortality during the World War. Their fluctuating population is compatible with Bulloch's estimate that of the 23,000 items in the "World List of Scientific Periodicals," covering the years 1900-31, 5000 were medical. The bibliographical scope of the Index-Catalogue is therefore phenomenal, and widespread appreciation of its help is graphically shown by the worn state of the original bindings, or by new bindings, of its volumes in the medical libraries of Europe.

How does the Index-Catalogue compare with previous medical bibliographies which Osler (1913) optimistically prescribed as the best "float through posterity," for the authors? Conrad Gesner (1516-65) "the father of bibliography" supplied what was in some respects the model for the "Bibliotheca Osleriana" (1929), hailed by Professor John Fulton "as the greatest achievement of the humanistic movement in medical bibliography." Albrecht von Haller (1708-77), the greatest medical bibliographer of the eighteenth century, dealt with botany, anatomy, physiology, surgery and medicine. W. C. Ploucquet (1744-1814) of Tübingen attempted to provide a complete catalogue of medical literature in his *Initia Bibliothecae medico-practicae et Chirurgicae realis* (1793-7). Robert Watt (1774-1819) of Glasgow, published in 1812 for the guidance of his students at the Royal Infirmary, "A Catalogue of Medical Books." This led to his ambitious and posthumous "Bibliotheca Britannica, or a General Index to British and Foreign Literature" in four volumes in 1824, covering law and other subjects in addi-

tion to medicine, thus reverting to the status of the scholar-physicians in the sixteenth century when medicine and the natural sciences formed part of the equipment of learned men. The labour thus entailed is said to have been responsible for the death of Watt and later of two of his sons. Thomas Young (1773-1829), physicist, Egyptologist, and physician, the most comprehensive genius and man of science who ever entered the medical profession, brought out in 1813 "An Introduction to Medical Literature, including a "System of Practical Nosology." A. C. P. Callisen (1787-1866), a Danish surgeon, in the 33 volumes of his *Medicinisches Schriftstellen-Lexicon* (1830-45) dealt exhaustively with medical publications from the middle of the eighteenth until the end of the first quarter of the nineteenth century. A comic relief to these many-volumed works might be supplied by the "Medical Bibliography" (1834) of James Atkinson (1759-1839) of York who gave up the task after the letter B, and it has been shrewdly suspected that he never had any intention of carrying it further (Ruhrah). It abounds in witticisms after the manner of Sterne's "Tristram Shandy" and has earned for him the title of "a disciple of Rabelais" and as well qualified for residence in the Abbey of Theleme.

Without in any way detracting from the services of these bibliographical fathers it is obvious that the life of a Government Department or public institution is potentially perpetual and not limited by the relatively short span of an individual life. Other medical bibliographers were described by Osler as Lilliputian as compared with the Gargantuan character of the Index-Catalogue.

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father the necessary payments for instruction at Miami University, Ohio, where in 1857 he took the degree of bachelor of arts with distinction in classics. He then entered the Medical College of Ohio at Cincinnati and supported himself during a two years' course; each year lectures were given for five months, the lectures being precisely the same year after year. In a reminiscent address (1888) on the "Medical College of Ohio before the War" he remarked that "in those days they taught us medicine as you teach boys to swim—by throwing them into the water." The privations of these two years of medical education were the hardest of his life, and he believed that he had never recovered from the effects of one winter during which he lived on seventy-five cents a week. He looked after the care of the dissecting rooms and before graduation held internships in two hospitals. A thesis was at that time demanded for the doctorate, and during the preparation of his essay on "The Surgical Treatment of Epilepsy" (published 1861) Billings found that there was not any really efficient medical library in North America; this stimulated him later, when he made the opportunity, to provide these much-needed facilities—the Library of the Surgeon-General's Office, its Index-Catalogue, and the Index-Medicus. Indirectly, this demand for a thesis did an enormous service, probably far more than any other thesis ever has or will do, to medicine. After graduation in 1860 he became demonstrator of anatomy in the medical school, and the prospect of a surgical career appeared on the horizon. His life's work, however, was entirely changed by the outbreak of Civil War in 1861. When he joined the Army of the North he was exceptional in equipping himself with what were then considered as "new-fangled notions," namely a set of clinical thermometers and a hypodermic syringe. His services in the war, first as assistant surgeon and subsequently as acting medical inspector of the Army of the Potomac were recognized by the brevet of Lieutenant-Colonel, March 13, 1865, "for faithful and meritorious service." On August 22, 1864, Billings was relieved from duty in the field and posted to the Washington branch of the Medical Director of the Army of the Potomac, and on the following December 27 was transferred to the Surgeon-General's Office in the War Department, where among other duties he was in

“nominal, though not official,” charge of the Library. Here he remained for thirty years, until on October 1, 1895, he retired at his own request. For the first ten years his official duties were of a somewhat dry routine character, but this did not prevent him from working on his own account, especially on the microscopy of cryptogamic fungi. In 1875 Billings' plans for the Johns Hopkins Hospital, Baltimore, were selected as the best by its trustees, and for a quarter of a century he played a dominant part in its organization; this was one of the three greatest of his many-sided activities, the other two being the Surgeon-General's Library with its Index-Catalogue and the Index-Medicus, and the New York Public Library.

The next year was notable for the appearance of his “Specimen Fasciculus of the National Medical Library, under the Direction of the Surgeon-General of the United States Army,” and also of his “A Century of American Medicine, 1776-1876; Literature and Institutions” which was described by Garrison (1929) as the most critical and useful account of American Medical Literature; it was also an antecedent of Abraham Flexner's Report on the Carnegie Foundation for the Advancement of Teaching on “Medical Education in the United States and Canada” (1910). In 1889 overtures were made to Billings to induce him to move to Philadelphia as Professor of Hygiene, and in 1891 with the permission of the Surgeon-General he began to lecture there on hygiene and vital statistics and in 1895 left the Surgeon-General's Library and moved to Philadelphia to take up the professorial chair. On June 1 of the following year, however, he was released from this chair in order to take up the post of Superintendent-in-Chief of the New York Public Library, which on his death in 1913 contained two million volumes and had more than fifty branch libraries with a staff of a thousand persons. His great work as first director of the New York Public Library has been well described by H. M. Lydenberg. In his last twenty years this forceful reserved man went through eight, four being major, operations, for cancer of the lip and calculi, and finally succumbed on March 11, 1913. He was buried with military honours in Arlington National Cemetery.

In his time Billings played many parts and with uniform

success; a man of affairs, he thought and organized far ahead, on broad lines, and in many directions, as his output of 171 publications in the course of half a century (1861-1911) bear witness. As a bibliographer he has been compared with the encyclopaedic Albrecht von Haller of the eighteenth century, and was given the palm by Osler. From his eminence as a vital and medical statistician he was called in to take an active part in the Reports of the tenth (1880) and eleventh (1890) Censuses of the United States, and he was constantly giving advice on public health and hospitals. Extremely versatile he was a good judge of men—a faculty not always found in scholarly bibliophiles—and selected Fletcher and Garrison for the Army Medical Library, and Welch, Osler, and Halsted for the Johns Hopkins Hospital. Garrison from long association with his chief drew the character of the strong, straight man who had the power of imposing his will on others, and sometimes employed the Napoleonic trait of simulating anger, but hardly ever was so in reality. Welch regarded him as the wisest of men, and Halsted said that he “was too great a man to be fully appreciated in his time.” One of his closest friends in London, Sir Lauder Brunton, wrote “as his name shows, he was of Scandinavian ancestry, and he retained the overpowering strength and energy by which his Berserker forefathers carried everything before them.” Sir John MacAlister (1856-1925), the secretary and moving spirit in the transformation of the Royal Medical and Chirurgical Society of London into the Royal Society of Medicine in 1907, quoted the following response by Billings to a compliment about his success in getting work done: “I’ll let you into the secret—there’s nothing really difficult if you only *begin*—some people contemplate a task until it looms so big, it seems impossible, but I *just begin* and it gets done somehow. There would be no coral islands if the first bug sat down and began to wonder how the job was to be done.”

ROBERT FLETCHER

Robert Fletcher was born at Bristol on March 6, 1823 as the son of Robert Fletcher, an attorney and accountant. For the two years 1837-9, before he entered on “the physic line” at the Bristol Medical School, he worked in his father’s office, and this

probably accounted for his later interest in medical jurisprudence, on which he lectured from 1884 to 1888 at Columbia University, Washington, D. C., of which he was made an honorary M.D. (1884), and at the Johns Hopkins University (1897-1903). In 1839 he was apprenticed to Henry Clark (1801-61) a well known surgeon and one of the founders of the Bristol Medical School, for the usual term of five years; the last two of these years he spent at the London Hospital as a pupil of James Luke (1799-1881) who was twice president of the Royal College of Surgeons of England, and of a physician whose name, Fletcher, when in reminiscent mood in the last year of his long life, confessed had faded from his memory. He married Hannah, daughter of John House of Bristol in 1843, and in the following year obtained the Membership of the Royal College of Surgeons of England (M.R.C.S.) and the licence of the Society of Apothecaries (L.S.A.), then the usual qualifications of general practitioners. In 1847 he emigrated to the United States and settled in practice at Cincinnati, where he may have met his junior in years and future friend and chief—Billings. He might have remained there indefinitely, but the Civil War changed both their lives. They certainly knew each other when surgeons in the Army of the North during the Civil War, after which they both were promoted, Fletcher to the rank of Colonel "for faithful and meritorious service."

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father the necessary payments for instruction at Miami University, Ohio, where in 1857 he took the degree of bachelor of arts with distinction in classics. He then entered the Medical College of Ohio at Cincinnati and supported himself during a two years' course; each year lectures were given for five months, the lectures being precisely the same year after year. In a reminiscient address (1888) on the "Medical College of Ohio before the War" he remarked that "in those days they taught us medicine as you teach boys to swim—by throwing them into the water." The privations of these two years of medical education were the hardest of his life, and he believed that he had never recovered from the effects of one winter during which he lived on seventy-five cents a week. He looked after the care of the dissecting rooms and before graduation held internships in two hospitals. A thesis was at that time demanded for the doctorate, and during the preparation of his essay on "The Surgical Treatment of Epilepsy" (published 1861) Billings found that there was not any really efficient medical library in North America; this stimulated him later, when he made the opportunity, to provide these much-needed facilities—the Library of the Surgeon-General's Office, its Index-Catalogue, and the Index-Medicus. Indirectly, this demand for a thesis did an enormous service, probably far more than any other thesis ever has or will do, to medicine. After graduation in 1860 he became demonstrator of anatomy in the medical school, and the prospect of a surgical career appeared on the horizon. His life's work, however, was entirely changed by the outbreak of Civil War in 1861. When he joined the Army of the North he was exceptional in equipping himself with what were then considered as "new-fangled notions," namely a set of clinical thermometers and a hypodermic syringe. His services in the war, first as assistant surgeon and subsequently as acting medical inspector of the Army of the Potomac were recognized by the brevet of Lieutenant-Colonel, March 13, 1865, "for faithful and meritorious service." On August 22, 1864, Billings was relieved from duty in the field and posted to the Washington branch of the Medical Director of the Army of the Potomac, and on the following December 27 was transferred to the Surgeon-General's Office in the War Department, where among other duties he was in

"nominal, though not official," charge of the Library. Here he remained for thirty years, until on October 1, 1895, he retired at his own request. For the first ten years his official duties were of a somewhat dry routine character, but this did not prevent him from working on his own account, especially on the microscopy of cryptogamic fungi. In 1875 Billings' plans for the Johns Hopkins Hospital, Baltimore, were selected as the best by its trustees, and for a quarter of a century he played a dominant part in its organization; this was one of the three greatest of his many-sided activities, the other two being the Surgeon-General's Library with its Index-Catalogue and the Index-Medicus, and the New York Public Library.

The next year was notable for the appearance of his "Specimen Fasciculus of the National Medical Library, under the Direction of the Surgeon-General of the United States Army," and also of his "A Century of American Medicine, 1776-1876; Literature and Institutions" which was described by Garrison (1929) as the most critical and useful account of American Medical Literature; it was also an antecedent of Abraham Flexner's Report on the Carnegie Foundation for the Advancement of Teaching on "Medical Education in the United States and Canada" (1910). In 1889 overtures were made to Billings to induce him to move to Philadelphia as Professor of Hygiene, and in 1891 with the permission of the Surgeon-General he began to lecture there on hygiene and vital statistics and in 1895 left the Surgeon-General's Library and moved to Philadelphia to take up the professorial chair. On June 1 of the following year, however, he was released from this chair in order to take up the post of Superintendent-in-Chief of the New York Public Library, which on his death in 1913 contained two million volumes and had more than fifty branch libraries with a staff of a thousand persons. His great work as first director of the New York Public Library has been well described by H. M. Lydenberg. In his last twenty years this forceful reserved man went through eight, four being major, operations, for cancer of the lip and calculi, and finally succumbed on March 11, 1913. He was buried with military honours in Arlington National Cemetery.

In his time Billings played many parts and with uniform

success; a man of affairs, he thought and organized far ahead, on broad lines, and in many directions, as his output of 171 publications in the course of half a century (1861-1911) bear witness. As a bibliographer he has been compared with the encyclopaedic Albrecht von Haller of the eighteenth century, and was given the palm by Osler. From his eminence as a vital and medical statistician he was called in to take an active part in the Reports of the tenth (1880) and eleventh (1890) Censuses of the United States, and he was constantly giving advice on public health and hospitals. Extremely versatile he was a good judge of men—a faculty not always found in scholarly bibliophiles—and selected Fletcher and Garrison for the Army Medical Library, and Welch, Osler, and Halsted for the Johns Hopkins Hospital. Garrison from long association with his chief drew the character of the strong, straight man who had the power of imposing his will on others, and sometimes employed the Napoleonic trait of simulating anger, but hardly ever was so in reality. Welch regarded him as the wisest of men, and Halsted said that he “was too great a man to be fully appreciated in his time.” One of his closest friends in London, Sir Lauder Brunton, wrote “as his name shows, he was of Scandinavian ancestry, and he retained the overpowering strength and energy by which his Berserker forefathers carried everything before them.” Sir John MacAlister (1856-1925), the secretary and moving spirit in the transformation of the Royal Medical and Chirurgical Society of London into the Royal Society of Medicine in 1907, quoted the following response by Billings to a compliment about his success in getting work done: “I’ll let you into the secret—there’s nothing really difficult if you only *begin*—some people contemplate a task until it looms so big, it seems impossible, but I *just begin* and it gets done somehow. There would be no coral islands if the first bug sat down and began to wonder how the job was to be done.”

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The Greetings from Beyond the Seas

Colonel HAROLD WELLINGTON JONES, M.C.
United States Army, The Librarian, Army Medical Library.

When the Surgeon General invited some 1200 of those whom he knew had long been interested in the Army Medical Library, to attend the celebration of the centenary of its founding, he expressed the hope that those institutions unable to send a representative would give the Library instead a word of greeting. Nor was he to be disappointed, if the messages from the far corners of the earth can be rightly interpreted. It is my pleasant task to contemplate these more than two hundred friendly salutations which have come from British Dominions, from the distant Empire of the rising sun, and the cedars of Lebanon, from France and Belgium, from almost every part of the civilized world abroad, in fact, down to those received from all over our own land. To say they warm the cockles of one's heart is to say feebly, for they do more—they make one feel that such work as ours knows no geographical boundaries. If we are to believe them, we who are one hundred years old today have not lived in vain.

Sitting at Dr. Billings' desk, he looks down upon me from the wall and his keen eye seems to warn me, "Mind you make no mistake and classify the Royal Society with the high school at Squash Center." Garrison, too, is beside him and the twinkle in his eye becomes him more, I think, than the uniform, for Garrison got his regimentals too late. So I feel that in acknowledging these many wonderful messages, these two, and I am certain that old Dr. Fletcher in the Hall as well, are listening in with enthusiasm.

What is this beautiful scroll? It is a greeting on parchment from the Royal Caroline Institute of Stockholm, and the Latin is finely lettered. An artist composed it—an artist lettered it—it is the perfect tribute from Dignity enthroned. The Royal College of Physicians of Ireland have also sent us a lettered scroll testifying their estimate of the Library's worth with an

accuracy admitting of no controversy, saying that their Society "For sixty years past, ever since the appearance of the first volume of your great Index Catalogue, they have turned with confidence to consult that work, and they have watched with admiration the wonderful growth of your Library . . . while the Index Catalogue has put its treasures freely at the disposal of students wherever medicine or its history is studied."

The Council of the Royal Academy of Medicine in Ireland also sends us an imposing diploma and greeting which recites the debt that they and medical workers throughout the world owe to the Library. . . . "That debt we feel sure will be acknowledged by many nations and many peoples, but by none, we believe more sincerely than by the Fellows and members of the Academy." Surely the Irish must be the despair of those others who endeavor to compose graceful tribute!

The Medico-Military School of Mexico City, in the goodness of their hearts, always warm to the Library and their Association of Military Surgeons have presented a Diploma of Honor, no less than thirty by twenty inches, a tribute to the usefulness of our Institution. From Bern, Switzerland, the University under the Seal of the Chancellor tells us "Der Rektor kennt aus persönlicher Ausschauung. . . ." —no mere dry and impersonal greeting. Moreover he mentions the Museum for good measure in the tribute!

The Academy of Medicine of Toronto in a beautifully illuminated address in red and green and gold says among other things, "Though separated from the United States of America by the boundaries of nationality, we have a common heritage in medicine. We are proud to be united in the bond of preserving and making available the knowledge of disease, its treatment and prevention."

The University of Bologna in a diploma resplendant with color and great seal utters this sentiment, nobly said (and I take the liberty of translating it), likening the Library's labor and patience in producing the Index Catalogue to "A flame of faithful, unselfish devotion, lighting the way to the alleviation of human suffering." The Bavarian Academy of Sciences, felicitates the Surgeon General upon the resumption of publication of the "indispensable" Index Catalogue. From Peiping, the Medical

College presents a framed address of honor and congratulations. Moreover, with thought courteous their representative supplied a translation of the central idea in the address—"A Century of Progress."

From Britain, the President and Council of the Royal College of Veterinary Surgeons assembled in Council, October 9, 1936, do say under seal and signature that "This opportunity is taken to express to the Government of the United States, to the Surgeon General and to his Librarian, the grateful thanks of the Council of the Royal College, speaking for the whole of the Veterinary profession in this country, for the inestimable benefits conferred upon them by the preparation and publication of the Great Index Catalogue."

The British Museum has this tribute in its message, now framed, a tribute which in its dignified sincerity means much to the Army Medical Library and to the Surgeon General: "Raised by the genius of John Shaw Billings to its present unchallenged position as the greatest collection of medical literature in existence, the Library has extended its service beyond the United States Army to the medical profession of America and further to that of the world. It is the Trustees' confident hope that the splendid tradition associated first with the name of the Surgeon General's Library and now with that of the Army Medical Library will be perpetuated during the second century of its life in even greater achievement."

The Chancellor of Kiel University acknowledges their indebtedness to us and sends a happy message of congratulation. Germany has indeed done well with her many acknowledgments from all parts of the Republic.

The Royal Society of Medicine of London says of us, "The achievements of the Army Medical Library since its foundation until the present day have been unequalled throughout the world, and in particular its Index Catalogue is without doubt one of the greatest contributions made by any institution toward the furtherance of medical knowledge." Furthermore this is signed by their President, by their Honorary Librarians, their Honorary Secretaries, their Librarian and their Secretary!

Now comes Oxford University with its fine scroll placed in our hands by the delegate, Professor Fulton of Magdalen

College. We are old, but what is a century to an institution which was founded in the mid eleven hundreds? A free translation of the message in beautiful Latin reads, "The Chancellor, the Masters and Scholars of the University of Oxford salute the Army Medical Library. We who are here ministering to the science of medicine with a special solicitude congratulate you with a fraternal spirit, Soldiers and Physicians, that in this year under happy auspices your Library celebrates its centennial. Indeed, nothing else can alleviate and mitigate the horrors of war better than if somebody can, as Virgil says, 'Put healing hands to wounds.' You, by assiduously collecting and reading books written of the medical art through so many years, have contributed materially to the alleviation of disease." Last of all come the greetings from the Royal Society of London in the form of a volume bound in blue leather and ending with the hope that "The United States and Great Britain have been comrades in arms; may they ever continue to be united in the nobler work of adding to human happiness."

Now having regretfully done with the diplomas let us examine a few of the hundreds of splendid letters, many of them containing sentiments as fine as those engraved upon parchment. From Strasbourg and the National and University Library: "La reputation de cet établissement qui est sans doute la plus importante des bibliothèques médicales du monde, a depuis longtemps dépassé les frontières des Etats-Unis. Les médecins de toutes les nations connaissent et apprécient le merveilleux instrument qu'est l'Index Catalogue, instrument indispensable à tous ceux qui étudient le passé proche ou lointain de la médecine." How we value such words!

Here is the greeting from Algiers and the Pasteur Institute, saying: "Nous nous réjouissons de l'occasion qui nous est offerte de rendre hommage au temple du savoir que représente l'Army Medical Library." O Temple of Knowledge, glutted to the full of literary treasures, may you bear the increasing burden yet a little while until your supplications shall be heeded! (Lest the reader misunderstand, the sentiments just expressed are the Librarian's).

The University of Leipsic breathes the hope, mindful of our age, "Mögen es der Army Medical Library vergönnt sein, ihre in

der Welt anerkannten hervorragenden Leistungen auch im zweiten Jahrhundert ihres Bestehens zu ihrem Ruhme und zum Segen der Wissenschaft erfolgreich fortzusetzen." May he who wrote that line have spoken a true prophecy and may we continue in honor and service in our second century as in our first. Indeed we may feel sure of this for has not the Bavarian State Library at Munich uttered the same sentiment, if not in the same words?

The Library at Frankfurt-am-Main goes even further and in a cheery message it hopes that "Within the next 50 years transportation shall be facilitated to such an extent, that the Frankfurt Library shall be able to send a representative for the 150th anniversary." It seems quite proper for us to extend a cordial invitation to Frankfurt to be represented in 1986, for there can be no doubt that the celebration will be duly held. Long before that date we can be sure that Germany will have solved the transportation problems of the Atlantic.

Belgium compliments us no less, and the tribute from the Royal Library in its capital: "Une oeuvre bibliographique de tout premier ordre qui n'a pas d'égal dans le monde entier" if duly earned, warms our hearts.

From the Island Empire of the Rising Sun the National Research Council in Tokyo offers its hearty congratulations, wishing the Library may ever continue to serve more and more as an indispensable organization for the progress of medicine and surgery and through it the promotion of man's happiness. The expression in the last few words touches me. "The promotion of man's happiness." The workers in science, are they always laboring for the happiness of mankind? In what often seems a mad world we may doubt, but not despair.

The greetings from the London School of Tropical Medicine of the University of London is quoted in large part, for the warm sincerity of the letter cannot be passed over. "It has been said that the Library is the post-graduate school for the practising physician, and that research begins in the library and not in the laboratory. It is fitting then that the London School of Hygiene and Tropical Medicine, founded for the dual purpose of post-graduate teaching and research, should send an expression of its gratitude to the greatest medical library of

the world. It is fitting also that this School, housed and equipped by American benefaction, should acknowledge its indebtedness for the priceless gift of the Index-Catalogue and the Index Medicus, those monuments to the self-sacrificing labours of Billings and Fletcher and their successors at the Army Medical Library in America, whose work has become a part of the heritage of this School. Concerned with the great twin subjects of hygiene and tropical medicine the School is proud to recall that Colonel John Shaw Billings after his thirty years of service to the Army Medical Library retired to accept the Chair of Hygiene at the University of Pennsylvania, and that in the list of his distinguished successors as Librarians there appears the name of Walter Reed whose services to the science of tropical medicine are an abiding inspiration to all workers in that field."

From the Lister Institute of Preventive Medicine of London, Professor Bulloch writes, "In connection with the celebration of the centenary of the foundation of the Army Medical Library in Washington, the Lister Institute of Preventive Medicine in London desires to offer its warmest congratulations and hopes for the success of this historic occasion. Originally a handful of books which slowly grew to only 2,000 volumes in the course of 30 years, this Library received an immense impetus by the tireless energy and supreme organizing ability of John Shaw Billings who, in 30 years' service, raised the Library to the premier position of medical libraries in the world and effected an increase of 150-fold in its volume. Not only did it become a treasure house for books and periodicals, but also the contents of these became known from 1880 onwards by the publication of the magnificent Index Catalogue which has been the admiration of all medical scholars. Not only was the Index Catalogue begun, but also for more than half a century it has been continued with an ardour which makes its 3 complete series the greatest bibliographic work ever published. The Lister Institute of Preventive Medicine is devoted to medical science and contains many active workers who have daily received an intellectual stimulus from the possession and study of the Index Catalogue of the Surgeon General's Library and the Index Medicus. It is, therefore, with peculiar pleasure that the Lister

Institute of Preventive Medicine sends across the Atlantic a hearty greeting and an expression of gratitude to the Authorities of the Army Medical Library in Washington on the celebration of the Centenary of the foundation of the most famous and the greatest medical library in the world."

The University of Cambridge Library says of us: "The Army Medical Library by its splendid series of Catalogues has laid the world of doctors and librarians under a great debt: it is, however, a debt which we are glad and thankful to acknowledge and which we trust will increase."

Now comes the Royal Hungarian University of Peter Pázámány. Does that sound like a legal phrase, perhaps like a petitioner on bended knee approaching the jurist with his prayer? Indeed no, it is merely Hungary kissing her finger tips at us across the sea, and how reminiscent of the old world is her wish for the Library, today a supposed centenerian—"Vivat, crescat, floreat!"

The Royal University of Uppsala, Sweden, although unable to be represented, sent its best wishes, saying, ". . . this library with its magnificent collections is of an importance reaching far beyond the boundaries of the United States of America. Its collections have attained such an admirable completeness that the monumental Index Catalogue of the Library in reality forms an excellent universal bibliography of the medical literature and thus makes an indispensable help, consulted almost daily in the libraries all over the world."

The South African Institute for Medical Research from Johannesburg sent heartiest congratulations by the Director Spencer Lister, who writes: "In this distant land we are not unmindful of the outstanding service that has been rendered to humanity in the cause of medical progress by the Army Medical Department and count it an honor to have this opportunity of paying a tribute of esteem to the Army Medical Library which is such an essential branch of that organization." Would that Billings were living today that he could realize that the Dark Continent of his day has been lighted and that the Library has in truth played a part in it.

Siam has not forgotten us and Chulalankarana University in Bangkok sends us a cheery message from amid that fairyland

of gold encrusted temples, not only to congratulate the centenary but to announce the arrival of a youngster who is now cutting its teeth upon a few thousand volumes, in fact a new medical library has been born in Siam!

Were it not for the limitations of space in the publication of the events of the celebration many more letters could be quoted, but in the cross section I have attempted to place on view, the spirit of the greetings from overseas has I am confident been shown. It is hoped that all have been acknowledged at the close of this paper. I have been asked: "Why have you not said something of the greetings from America?" The answer is that invitations to foreign lands were sent with the full knowledge that except in the rarest instances no representative would be able to make the journey to Washington, and those institutions receiving invitations were asked, as has been said at the beginning of this paper, to send a greeting. Because they responded magnificently, special acknowledgment has been made in these few pages.

In the case of the invitations to American Institutions, their representatives came by the score in person. To the Library, personal representation is far more flattering than any diploma. Could one say more?

The full list of letters of greeting, as far as it is possible to give it, follows. With a few exceptions which arrived too late to be read, the list is as presented by the Chairman to the assembled guests, at the ceremony.

THE LETTERS

Algiers—Pasteur Institute;

Argentina—National Academy of Sciences of Cordoba; Faculty of Medical Science of the University of Buenos Aires; University of La Plata;

Australia—Commonwealth Institute of Australia; Government Statist.;

Austria—National Library; University Library of Vienna; Medical Society of Vienna; Academy of Sciences in Vienna; Academic Body of the University of Vienna; Institute of the History of Medicine, University of Vienna;

Belgium—Royal Library of Belgium; Royal Academy of Belgium; Royal Academy of Medicine of Belgium; Catholic University of Louvain; Post Graduate Institute of Belgium; Army Medical Service;

Brazil—Library of the Faculty of Medicine of Bello Horizonte; Minister of Education and Public Health;

Bulgaria—University of Sofia;

- Canada—Osler Medical Library of McGill University; Vancouver Medical Association; Laval University of Quebec; McGill University; Queen's University of Kingston; University of Montreal; University of Toronto; Director General of Medical Services for Canada;
- Chile—Director General of Public Health;
- China—National Library of Peiping; National Quarantine Service; Peiping Union Medical College;
- Colombia—National Department of Health;
- Cuba—Library of the School of Medicine of the University of Havana; Academy of Medical, Physical and Natural Sciences of Havana; Minister of Health of Cuba;
- Denmark—Royal Library, Copenhagen; Royal Danish Academy of Sciences and Letters;
- Dominican Republic—Medical Faculty of the University of Santo Domingo;
- England—Bodleian Library at Oxford; John Rylands Library; Library Association; Association of Special Libraries and Information Bureaux; Bibliographical Society; British Association for the Advancement of Science; British Museum; Science Museum; Wellcome Historical Medical Museum; Medical Research Council; Medical Society of London; Pharmaceutical Society of Great Britain; Royal Society of Medicine; National Veterinary Medical Association; Birmingham Medical Institute; Medical School of Guy's Hospital; Royal Army Medical College; Royal College of Surgeons of England; Royal College of Veterinary Surgeons; Lister Institute; Liverpool School of Tropical Medicine; Royal Sanitary Institute; London School of Hygiene and Tropical Medicine; University of Birmingham; University of Bristol; University of Liverpool; University of London; University of Oxford; University College of London; University Library of Cambridge; Admiralty; Director General of Navy; Director General of Medical Services of the British Army; Lord Cecil of Birmingham; Lord Dawson of Penn; Sir James Barrie; Squire Spriggs, Editor of the Lancet; Sir D'Arcy Power; Henry Guppy;
- Estonia—Tartu University;
- Finland—University of Helsinki;
- France—National Library; National and University Library of Strasbourg; League of Red Cross Societies; Pasteur Institute; Academy of Medicine; Universities of Bordeaux, Montpellier, Paris; Minister of War; Inspector General of the Medical Service of the Navy;
- Germany—German Library, Leipzig; Library at Charlottenburg; Senckenberg Library at Frankfurt a. Main; State Library of Bavaria; State Library of Prussia; German Society of History of Medicine, Natural Sciences and Technics, Berlin; Library of Society of Natural History and Medicine, Dresden; Medical Society of Berlin; Society of Sciences in Göttingen; Chemotherapeutic Research Institute George Speyer-Haus; German Museum of Hygiene of Dresden; Ibero-American Institute of Berlin; Institute of History of Medicine, Leipzig; Institute of History

of Medicine and Natural Sciences, Berlin; Academy of Sciences in Saxony, Leipzig; Charles Franz University in Graz; Medical Faculty of the Hessian State University, Giessen; Johann Wolfgang Goethe University at Frankfurt a. Main; Martin Luther University, Halle (Saale); Psychological Institute of the University of Leipzig; University of Hansa, Hamburg; University of Heidelberg; Library of the University of Leipzig; University Library of Göttingen; University of Munich; University of Tübingen; University of Würzburg; Chief Sanitary Inspector of the Army; National Bureau of Public Health; Dr. M. Planck; Surgeon General of the Army, Berlin;

Greece—Academy of Athens;

Guatemala—Minister of Public Health; Secretary of Foreign Relations;

Haiti—Director General of Public Health;

Hungary—Hungarian Academy of Science; Royal Hungarian Francis Joseph University; Royal Hungarian Peter Pazmany University of Budapest; Royal Hungarian Department of Interior;

India—Editor of Indian Journal of Medical Research;

Ireland—Royal Academy of Medicine; Royal Irish Academy of Dublin; Royal College of Physicians;

Italy—Library-Pinacoteca-Museum of Milan; Vatican Apostolic Library; Royal National Academy of the Lincei; Royal Academy of Sciences of the Institute of Bologna; Academy of the History of the Healing Arts; Royal University of Milan; Royal University of Bologna; Journal of Medico-Military Medicine, Ministry of War; Director General of Health of the Ministry of Interior; National Italian Commission for Intellectual Cooperation; Professor Castiglione;

Japan—National Research Council of Japan; Kyoto Imperial University; Tokyo Imperial University;

Latvia—University of Latvia;

Lebanon—American University of Beirut;

Lithuania—University of Vytautas the Great;

Mexico—Faculty of Medicine at Morelia; State College of Puebla; Institute of Biology of the National University of Mexico; National School of Homoeopathic Medicine; Medico-Military School of Mexico City; Department of Health of Mexico;

Netherlands—Dutch Medical Library; Royal Academy of Sciences at Amsterdam; University of Leyden;

Nicaragua—Minister of Hygiene and Public Welfare in Nicaragua;

Norway—Medical Society of Norway; Royal Frederick University;

Palestine—The Hebrew University of Jerusalem;

Peru—Department of Public Health;

Poland—Jagiello Library in Krakow; Medico-Historical Institute of the Jagiello University; Joseph Pilsudsky University in Warsaw;

Salvador—Director of Public Health;

Scotland—National Library of Scotland; Royal Medical Society of Edinburgh; Royal Society of Edinburgh; University of Glasgow;

- Serbia—Royal Serbian Academy;
Siam—Faculty of Medicine of Chulalankarana University;
South Africa—Royal Society of South Africa; South African Institute for Medical Research;
Sweden—Royal Swedish Academy of Science; Royal University Library of Uppsala;
Switzerland—National Library of Switzerland; Library Society of the University of Zurich; Swiss Society of the History of Medicine and Natural Sciences; Medical Faculty of the University of Basel; University of Zurich;
Venezuela—Dental Association of Caracas; Minister of Health and Social Assistance;
Yugoslavia—University of Zagreb.

A Greenhorn's Experience in the Library

PERCY M. ASHBURN, M.D.

Colonel, U. S. A., Retired, Formerly Librarian, Army Medical Library

Having been asked as an ex-librarian of the Army Medical Library to write something for this occasion, I have concluded that an account of my experience is apt to be more interesting than anything of a more important nature which I could prepare on short notice. This experience may have a certain degree of interest because, like most of those who will succeed me (unless the law be changed), I went to the library without either training or experience in that sort of work. Also, it was during my tour of service that the continuity of service of men trained under Dr. Billings was broken.

Colonel Fielding H. Garrison, who had been in the library since 1891, except for a brief period during the war and another shortly before I went to the library, had been trained by Billings and was thoroughly saturated with the spirit of the place and felt it a large part of his life and of the life of medicine, and knew every phase of work carried on in it. He was a rare and remarkable genius. It is only necessary to know his great book, *An introduction to the History of Medicine*, to know that he was a genius, but to know the man and to be associated intimately with him was to see daily proofs of it. His industry was prodigious and he worked without regard to hours. His mind was versatile and more nearly concerned with "all knowledge" than any other which I have known. His information was as though mentally

card-indexed, always promptly available. And it was not merely medical information—music and higher mathematics were his hobbies and thoroughly familiar to him in theory and practice; he knew the world's literature, and I mean that statement literally. Not only did he know the good things of English, French and German literature, the Russians whom so many have read in translation, the Greek, Roman and Hebrew classics, but he was familiar with current trends in Spanish and Portuguese, in Scandinavian and Italian, and his knowledge of Chinese and Japanese literature, classical and modern, astonished me. And Garrison was not a man who tried to astonish. He always acted as though I were as familiar with the subject as he, and mentioned an author or quoted his works with an air of apology. In fact, he had a remarkable inferiority complex. Although he had the greatest, much the greatest knowledge of medical writings of any man I have ever known, possibly of any who has ever lived, he had never practiced medicine, and although he was retired as a colonel in the army, he knew no more of military life than he knew of medical practice. He idealized both of these and looked upon his own talents as dust and ashes in comparison with those ideals. Coming to the library with thirty-four years of medical practice and twenty-nine of military life back of me, I was invested with glories he could never hope to attain, and I knew them to be as dusty and ashy as he regarded his talents. So each of us was humbled in the presence of the other, and we got on most pleasantly together. I was glad to have him to induct me into library work and he did it gladly and made me like it. By practicing what he taught me, I soon learned how he could be so well informed on ancient and current medical literature and I even came to feel that, had I been caught by the library as early as he was caught and lived my life in it as he had lived his, I might have been able to know it as well as he. But only special gifts of God, which I know have been withheld, could have made me capable of loving and understanding mathematics, languages, and music as he did or could have made me as industrious. I trust that in some heavenly Academy he is walking with the great ones of intellect and of art, enjoying communion with Hippocrates, Galen and Harvey, with Newton and Galileo, St.

Paul and Moses, with Beethoven and Mozart, that he hears the music of the spheres and is accompanist to the heavenly choir.

Another old timer who retired from the library during my regime was Felix Neumann. He too had been caught young and had spent his life in libraries, but mainly with the ancient and early editions. Type, paper, water-marks, printer's marks, were the breath of his nostrils. He was a Prussian, emotional, irascible, as arrogant as Garrison was modest, embittered by the World War, jealous and suspicious, learned and irritating. His life was brightened shortly before his retirement by an honorary LL.D. from Georgetown University, and I think that this somewhat relieved the mental gloom and counterbalanced the physical suffering which made his life hard. He too was my friend at such times as my stupidities did not cut me off. But my military life was not Prussian and my knowledge of incunabula was practically *nil*, so I wore no halo for him. God rest his soul in a heaven possessing all the medical incunabula which ever perished from the earth, and may he there be ever happy examining their paper, water marks, printer's marks and type, and making such heavenly perfect descriptions and catalogues of them that no other bibliographer in all Heaven can find any fault with them.

The third man of special skill and long experience who reached the end of his service at this time was Dr. Albert Alleman. A worker in the library under Billings and Fletcher, he had for many years edited the cards from which the Index Catalogue is made, thinned them out, corrected and arranged them for the printer, and read proof. A learned, gentle man, his fund of information was very great, his special skill in his work unmatched. He had to retire for age, but his living presence is still with us and he at times visits the library to do a bit of research. Long may he live in comfort and happiness.

The retirement of these men would have left the library facing a very serious situation had not special action been taken. Law or Army Regulations forbade the service in Washington for longer periods than four years of officers of less than general officer grade: regulations provided that the librarian and assistant librarian should be officers of the Medical Corps

of the Army. With these laws and regulations in force all continuity of service by the administrative and editorial forces would have been destroyed. New men would come in each four years wholly ignorant of the highly technical work involved and it would not require many changes of administration to reduce the work to chaos. Before the retirements came I had had enough experience to be able to speak authoritatively on the need for continuity of service, special training and experience, and the Surgeon General asked for and obtained under civil service rules the office of assistant librarian. To this Dr. Beatrice Bickel was appointed. I was likewise able to obtain the services of Dr. Claudius Franz Mayer in Mr. Neumann's place. These two also took over Dr. Alleman's labors. I suspect that my greatest service to the library lay in these appointments.

One of the first bits of routine work which fell to me was checking the English, French, Spanish, Italian and Portuguese language journals and selecting the worth while articles for inclusion in the Index Catalogue. This work has its interesting features. It keeps one in personal touch with a wider literary output than he has been accustomed to, and it gradually brings to consciousness the fact that many a new thing begins a vogue in America after it has run a long course in Europe; that America, while in the van of medical progress, has no monopoly of the position, and it is often slow in coming to know of advances. We are not without our touch of medical chauvinism.

This work rouses a greater interest in words than one has had before, and as words are the principal means of conveying thought, it makes for accuracy of thought. Bacon said that writing maketh an exact man and I would not gainsay it, but translation has the same tendency. In each instance one is trying to convey in words an exact meaning. I believe that library work made me more exact.

The librarian of this library can, if he wishes, crowd all his time with detail and routine work. If he wishes otherwise, he can find time as Garrison did for much outside work. When I had been about a year in the position, Surgeon General Ireland asked me to undertake the preparation of a history of the Medical Department of the Army, and he secured special assistance for me in the person of Lieutenant Colonel Louis C. Duncan,

a man so steeped in the history of America and its armies as to make him invaluable for my task. Here began my first historical research, and I found it fascinating. With the help of Duncan and the abundant material in the library, the work went rapidly and within a year the book was produced to General Ireland's apparent satisfaction. It is not a book to interest the world but is, I hope, of value to the Medical Department.

This work gave me an appetite for historical research, and for the fun of it I undertook an investigation as to the origin of malaria. I did not get far with that but I soon became convinced that there was no malaria in America when the whites came, and that knowledge diverted me to the study of the medical history of the conquest of America in the sixteenth and seventeenth centuries. I soon found that the Army Medical Library had very little of first hand information on the subject, because there were almost no medical writings upon it, the few doctors who accompanied the first expeditions either not being writers or, in the few writings which they left, throwing little or no light on the diseases they encountered. So the search was taken up in the writings of the explorers, soldiers and priests who actually accompanied the explorations and conquests and wrote of them or who were able to write their histories almost at the time, men like Columbus, Cortes, Las Casas Oviedo, Herrera, Cabeza de Vaca, Jacques Cartier, William Bradford, Captain John Smith and many, many others. This was most interesting work and most satisfactory in its immediate results. The mortality attending the conquest of America was enormous among both the conquerors and the conquered, but the writings of the participants reveal clearly that that among the conquerors was almost without exception due to starvation and deprivation diseases, especially scurvy, while that among the Indians, likewise almost without exception, was due to infections which were newly introduced among them and from which they had and could have no kind of immunity either natural or acquired, and before which they "died like rotten sheep," to use Governor Bradford's expression. The reading of these old worthies was perhaps the greatest literary pleasure I have had. Utterly unaware of the possible existence of the question which interested me, they yet told

me much and told it with such clarity as in most instances to preclude all doubt. It was also most interesting to see how similarly their minds worked. All, Spanish and Portuguese, French and English, Papist and Puritan, held their religious convictions with a certainty safe from every assault and every doubt, and all found all facts to confirm their beliefs in God's special providence for them, in noting that the Indians were devastated by smallpox which spared them, because it was God's visitation in order that way might be made for his chosen ones. When the Indians were treated with injustice, cruelty or persecution it was for His glory and the spread of His holy word. When old Bernal Diaz del Castillo lamented the loss of the myriads dying during the conquest of Mexico, it was not because their deaths implied cruelty, injustice, or lack of protection against smallpox, but because "such multitudes of unfortunate souls being sent to the other world without having an opportunity of being admitted into the bosom of our holy church." Truly, human nature and psychological processes change little in a few centuries. And what iron men those conquerors were, Spanish, Portuguese, French and English, but the Spanish especially seemed incredible. Their writings contain enough of adventure and romance (other than the "boy meets girl" romance of the movies) to keep the world thrilled for years, but the world does not read them nor know many of the prodigies they performed.

And the joke is that when I wrote a "Medical History of the Conquest of America in the Sixteenth and Seventeenth Centuries," based on evidence furnished by them in great abundance, publishers told me that such a work can not be commercially successful. However, the joke is not entirely on me, as I have had my pleasure in the work and I possess a real knowledge of an important phase of history not possessed by most. I know that America was almost infection free when the whites came, that malaria, yellow fever, smallpox, measles, typhus fever, amebic dysentery, diphtheria, leprosy, leishmaniasis, the hookworm, the Guinea worm, the tapeworms, schistosomiasis, trachoma, and other diseases were imported to America in the persons of whites or blacks: that gonorrhoea and typhoid were probably imported, pyogenic infections and tuberculosis possibly

so. Unfortunately, I am not able to settle the centuries old quarrel about syphilis. I am personally inclined to believe that it was imported, but the evidence is almost or quite as strong on the other side. I know that the conquest of America was effected by disease rather than by the arms or the superior culture of the whites. This knowledge added to the fun I had takes the sting from the joke and pays for four years of work.

Summing up what the library did for me, I may say that it furnished me with interesting work for years and it enlarged my interests and my knowledge. It taught me that the progress of medicine has largely paralleled that of human thought, beginning early in man's development on a basis of instinct and being later supplemented by observation and reason. It was a glowing and growing flame in ancient Egypt, Babylonia, Greece and Rome, a flame declining almost to the point of extinction as dogma was allowed to replace observation and philosophic effort to make facts conform to dogma was allowed to replace reason. These were the causes of the darkness of the Dark Ages, the results of which were ignorance, superstition, blindness to facts, and a condition of medicine which made it a much greater factor for harm than for good. Yet never were opinions more strongly held; never was the scientific (orthodox) stand more revered. We are not more convinced that the blood circulates than were our ancestors of the correctness of the humoral theory, not more sure of the virtues of vaccines and sera than they of the effects of the planets on the body and its disorders. When in the slow course of time the work of Harvey, Pasteur and Lister succeeded in restoring observation and reasoning based thereon to their proper places, began to dethrone and degrade dogma, medicine again took up its advance. It seems to me that the greatest of all lessons to be learned from medical history is the lesson of distrust of dogma and of authority, the lesson of healthy scientific skepticism, the lesson that we must question all things, even those that seem scientifically most sound. Another great lesson is that the man who does this is apt to be accused, abused and ridiculed by those in high places, as were Harvey, Pasteur and Lister. The library enlarged my tolerance and charity, gave me to know somewhat more of myself.

American Medical Literature — 1836

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It is the purpose of this short paper simply to indicate the amount and the quality of medical literature that this country had produced up to the year in which the Army Medical Library had its beginning and, except for a few general observations, to leave to each of my readers his own comparisons with our national medical literature of today. Over two hundred years had passed since the beginning of the country's settlement, but the first hundred and fifty had been practically barren of medical authorship. Few of the practitioners of this early period were educated men and fewer still had any education in the medical sciences. It was common practice for the clergyman or the public official to take up medicine as a secondary occupation and often these furnished the only medical service available. With the ordinary prevalence of the common ailments, the colonial settlements were subject to veritable plagues of smallpox, measles, scarlet fever and diphtheria. It is to be expected that the scant writings of the period were devoted to these subjects almost exclusively. A one-page pamphlet issued in 1677 by Thomas Thacher, a clergyman of Boston, discussed the management of smallpox and measles. Another pamphlet of about the same time, without name or date, discussed the treatment of measles. Thacher's pamphlet is the first item of American medical literature and, with the other mentioned above, comprised the total output of that century. In 1721 Zabdiel Boylston of Boston introduced the practice of variolation for smallpox and in 1726 published an account of his experiments. His work and his publication were occasions of bitter controversy, carried on by means of pamphlets and the newspapers. The pamphleteers involved in this acrimonious dispute include Benjamin Colman, Isaac Greenwood, Increase Mather, William Cooper and William Douglas, the latter notable as the author of a pamphlet on *Angina ulcusculosa* (1736), an excellent account of scarlet fever. Pamphlets of this period on the various anginas and eruptive fevers include those of John Walton (1732), Cadwallader Colden (1735) and Jabez

Fitch (1736). Somewhat later, yellow fever became the important topic for the colonial writers. Notable pamphlets on the subject are those of Colden (1743), John Bard (1749) and John Lining (1753). With mention of the monograph of John Tennant on pleurisy (1736), of Thomas Cadwalader on lead-poisoning (1745), of John Bard on malignant pleurisy (1749) and of Samuel Bard on diphtheria or "angina suffocativa" (1771), the list of notable colonial contributions to medicine is about complete. Billings, in the *Century of American Medicine* (Phil., 1875), says that at the commencement of the Revolutionary War we had one medical book by an American author, three reprints and about twenty pamphlets. The years until the end of that century were but slightly more fruitful. The war was a great impetus to medicine but was the source of the scantest of medico-military literature. John Morgan and William Shippen, chiefs of the army medical service, were too much medical educators to find interest in military medicine. Even in their chosen field they left little written record of their work. The most industrious writer of this period was Benjamin Rush, who mixed propaganda against slavery, alcohol and the death penalty with a mass of creditable medical work. His pamphlet on the hygiene of troops (1777) was published to the army by order of the board of war. His account of the yellow fever epidemic of 1793 in Philadelphia (1793) and that of Matthew Carey (1793) were the most graphic and complete accounts of the disease up to that time. His *Diseases of the Mind* (1812) antedates by years any other systematic treatise on the subject. As a whole, the medical writings of the years immediately preceding and following the war were largely devoted to the problems of medical education, then in its infancy in this country. With the beginning of national life began the passing of the pamphlet and the beginning of periodic literature. The best of the literary contributions following the war were contained in the memoirs of the American Academy of Arts and Sciences, Boston, 1785, and in the Transactions of the American Philosophic Society at Philadelphia, 1786. Yellow fever, hygiene and medical education continued the all-absorbing topics to the end of the century. The one book by an American author noted by Billings was *Plain, Precise, Practical Remarks on the Treat-*

ment of Wounds and Fractures (1775) by John Jones of New York. It is a compilation from European sources as were the majority of books that were to follow it. The first work based on original material is *Cases and Observations by the Medical Society of New Haven County* (New Haven, 1788). This is a collection of twenty-six articles, mainly case reports with autopsies.

The name compilation cannot be applied disparagingly to all of the books of this early period. Material for original writing was scarce and scattered while the work entailed by a good compilation approximated that of an original work of the same magnitude. Tytler's *Treatise on Plague and Yellow Fever* (1799) is an exhaustive account of these two diseases and Noah Webster's books on *Bilious Fevers* (1796) and *Epidemic and Pestilential Diseases* (1799) were highly useful in their time.

With the dawn of the nineteenth century there occurred a notable expansion in medical writing. The largest output was in text-books for the schools of Philadelphia, New York and Boston. Many of these were simply compends relating to the treatment of disease and injuries, while a few, though compilations, were creditable systematic treatises. It is possible, even in this short paper, to indicate practically all of the notable American medical books that were produced to the year 1836. In Anatomy Wistar's *System of Anatomy* (2 volumes, 1811-14) was the first, followed by Horner's *Practical Anatomy* (1823), a dissector's manual, *Special and General Anatomy* (1826) and *Pathological Anatomy* (1829). Likewise worthy of mention are the monographs (1824-27) by John D. Godman on special physiological and pathological anatomy. In *Surgical Anatomy*, William Anderson published a volume (1822) covering the groin, pelvis and perineum, and N. R. Smith his *Surgical Anatomy of the Arteries* (1832).

In the field of Physiology, Dunglison's first edition appeared in 1832 and monopolized the text-book field in this subject for years. In *Materia Medica* and *Therapeutics* the ground was covered early and well. Barton's *Elements of Botany* (1812) and Bigelow's *American Medical Botany* (1817-20) are works of high value. The first native treatise on therapeutics is that of Chapman (1817) followed by those of Bigelow (1822),

Eberle (1834) and Dunglison (1836). In this connection should be mentioned the early Pharmacopoeias and Dispensatories, of which there were several. The first Pharmacopoeia is that of William Brown (1778) for the use of the military medical service. The first for general use was that of the Massachusetts Medical Society (1808), followed by that of the New York Hospital (1816). The first *Pharmacopoeia of the United States* was published in Boston in 1820, with a revision in Philadelphia in 1830. Drs. Wood and Bache, who were largely concerned with the revision, supplemented it by the *American Dispensatory* (1833). Previous works of the same title had been published by J. R. Coxe (1806) and J. Thacher (1810). Our first indigenous text-book on Surgery was Dorsey's *Elements of Surgery* (1813). Gibson's *Practice of Surgery* (1827) is the only other during the period covered by this survey. In a more limited field Gross had published his book on *Diseases of Joints* (1830), the first of a notable series on surgical topics. Some years were still to elapse before the appearance of the first works of Pancoast and Piper on operative surgery. Early text-books on Gynecology and Obstetrics are the *Theory and Practice of Midwifery* (1807) by Samuel Bard and the *System of Midwifery* (1824) and *Diseases of Females* (1826) by Dewees. In Theory and Practice of Medicine, Hosack's *System of Practical Nosology* (1821) was the first treatise, followed in 1830 by the *Practice of Medicine* by Eberle, who also published in 1833 a work on the diseases of children. Samuel Jackson's *Principles of Medicine* (1832) is a discussion of medical pathology. The only attempt up to this time to produce an encyclopedic work was the *American Cyclopaedia of Practical Medicine and Surgery*, edited by Isaac Hay of Philadelphia, of which two volumes were published in 1834-36.

Of the text-books on miscellaneous subjects which go to make up the remainder of the native output, the most notable are the works on *Medical Jurisprudence* by T. R. Beck (1823) and J. B. Beck (1835), the *Chemistry* (1832) of T. D. Mitchell and the *Medical Dictionary* (1833) and *Elements of Hygiene* (1836) by Dunglison. The name of Dunglison has been familiarized to every American student of medicine for a century by his Dictionary, which under another name is still one of the most popu-

lar. Beyond the text-books here listed there had appeared a few monographs of more than passing interest. Foremost among these is Beaumont's *Experiments in Digestion* published at Plattsburg, New York, in 1833. Others included *Observations on Vaccination* (1822) by J. R. Coxe and *Contagions and Infections* (1818) by Dr. Shecut of Charleston, S. C. Daniel Drake had begun the series of monographs which preceded and led up to his classical work (1850) on the diseases of the Mississippi Valley.

Medical journalism began in America with the first number of the *Medical Repository* on July 26, 1797, in New York. Issued as a quarterly the Preface and Circular Address in the first number give at length the proposed scope and ambitions of the new journal. It was to be a "depository of facts and reasonings relative to Natural History, Agriculture, and Medicine," and it was to be the means by which the forgotten man of medicine could be kept conversant with professional advances whether in America or in Europe. Its scope was divided largely into five parts, which may be designated as general medicine, veterinary medicine, entomology, agriculture and meteorology. The Circular Address went into great detail in listing under eleven headings the additional subjects upon which communications were desired. These subdivisions of knowledge include epidemiology, applied therapeutics, occupational diseases, case histories, medical history, medical biography, literature reviews, mineralogy, botany, zoology and items of medical news. This bid for material was addressed "not to physicians alone, but to men of observation and to the learned, throughout the United States." It was proposed that the volume for each year should "form the history of the health of the United States for the year preceding."

The list of original subscribers is rich in eminent names, out of all proportion to its length, showing the appeal that it had to all the learned professions. Among physicians appear the names of Philip Syng Physic, Benjamin Rush, Caspar Wistar, William Dewees, David Hosack and James Tilton, the latter to later become Surgeon General of the Army. Men of law and men of religion were largely represented. Among these non-medical subscribers appear the names of DeWitt Clinton, Noah

Webster, Josiah Quincy and Timothy Dwight, president of Yale University. The account of this journal is thus given in detail because it is typical of the scope and purpose of the others of this early period. The *Repository* survived until 1824, long enough to see the rise and fall of a number of competitors.

Philadelphia, the early American medical center, had been so hard hit by yellow fever that it permitted New York to thus take the lead. In 1804, however, almost simultaneously J. R. Coxe established the *Philadelphia Medical Museum* and B. S. Barton the *Philadelphia Medical and Physical Journal*. Though edited by talented men, these journals were irregular in their issues and died early, the *Journal* in 1809 and the *Museum* in 1811. Boston entered the field in 1806 with the *Medical and Agricultural Journal*, hardly a medical journal as it dealt only in domestic medicine. It expired the following year. The fifth journal appeared in Baltimore in 1808 with the *Baltimore Medical and Physical Recorder*, edited by Tobias Watkins. It passed away with the first number of the second volume in 1809. Two more Baltimore journals, one in 1811 and one in 1823, failed to finish the first volume.

With the appearance of the *New York Medical and Philosophical Journal and Review* in 1809, the *Repository* had a rival in its own field, with which for three years it maintained controversial terms. The newcomer expired in 1811, but in the meantime, in 1810, the brilliant David Hasock had started the *American Medical and Philosophical Register*. This journal maintained friendly relations with the *Repository*. After four creditable volumes it suspended in 1814.

The next Philadelphia venture was the *Eclectic Reportory and Analytical Review* which appeared in 1811. As this journal's span of life was passed before there was an eclectic school of medicine the title does not signify any sectarian allegiance. It survived for ten years, but its fame rests upon a three page article in its seventh volume. This is the communication in which Ephriam McDowell of Danville, Kentucky, reported his first extirpations of ovarian cysts, an epochal article which revolutionized operative gynecology.

Boston achieved its first real medical journal in 1812 when the *New England Journal of Medicine and Surgery* made its

appearance. It was ably edited from the first and under various names has survived to this day as the *Boston Medical and Surgical Journal*. New York gave being to three more journals within the period covered, the last, the *New York Medical and Physical Journal* (1822-30), falling heir to the subscription lists of the *Repository* upon its suspension.

Unheralded in advance, the appearance of the *Philadelphia Journal of the Medical and Physical Sciences* in 1820 was epochal. Founded by Nathaniel Chapman, from the beginning its contents was of outstanding quality. In 1827 Isaac Hay took charge and changed its name to the *American Journal of the Medical Sciences*, which to this day holds front rank in medical journalism of the world. Beyond the Alleghanies, Cincinnati in this period produced a series of short-lived journals, notably the *Western Journal of the Medical and Physical Sciences*, of which Daniel Drake was editor and in which he published much of his best work. With mention of the *Transylvania Journal of Medicine* (1828-39) of Lexington, Kentucky, the list to 1836 is about complete. From the above cited article by Billings we find that up to 1840 forty-seven journals had been started with eleven surviving in that year. In the forty-two years since 1797 there had been completed but 226 volumes with 13 volumes partially completed. An average journal life of less than five years!

If the pages of these journals were open to discussion of poultry raising, inland waterways and windmills, they were also, as in every land, the avenue by which original contributions to the literature of medicine were first made public. Though the pamphlet was still somewhat in vogue, after 1800 medical journalism became the principal means of recording the experiences and observations of practitioners of medicine and began to erect its influence on the advancement of medical science and education. What then of the American resources for a medical library in 1836? To the number of journal volumes quoted above can be added 245 volumes of first edition American medical books, or 381 volumes of all editions printed up to this date. To this may be added 34 volumes of medical society transactions. This is the native material upon which the Army Medical Library was begun. To supplement this scanty supply, the book collector

must rely upon foreign printed works and American reprints of foreign books. In the earlier days the colonial physician was entirely dependent upon importation of foreign books, mainly of British origin. The works of the men of the Edinburgh school were especially popular. There were French and German language books for such as could read them. Later the American reprint supplied the greater demand. With no copyright protection it was more economical for the American publisher to reproduce the work of a foreign author than to employ a native writer. During the period under survey there were 348 first edition reprints of English and translated foreign books, or 563 volumes of all editions.

It would be quite beyond the scope of this paper to discuss the expansion of American medical literature in the past hundred years. As a single example of what that expansion has been, it may be mentioned that in this year of 1936 there are regularly received at the Army Medical Library 568 American periodicals that have more or less claim to the status of medical journals. From the all-embracing scope of the earlier publications, it has developed that in this day the most limited of specialties has its representation in the journal field. The printing of new medical books has kept pace with the expansion in the periodical field. It is probably not too much to say that, what with journals, books and society transactions, the total American extant medical literature of the year 1836 is reproduced in quantity, and of much higher quality, in any one of our current years.

Dr. Billings and his Work

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In 1836 the Surgeon General's Office began to collect books and to establish a medical library. It was an important decade in medical history. During the thirties of the last century men like Johannes Müller, Marshall Hall, William Beaumont, Schwann, Gerhard, Bright, Colles, Henle, Schönlein, Schleiden and Skoda published their epoch-making discoveries and started that period of medical research and medical progress which

continued with ever increasing activity through the 18th century and down to our days. It was in this period that the Library of the Surgeon General's Office grew to the largest medical library in the world.

Among the men whose enthusiasm and tireless labor contributed to this marvelous advancement of the medical sciences, John Shaw Billings stands in the foremost rank. He deserves this position not so much by his work in practical medicine—though his work in public hygiene is of great importance—as by the publication of the Index Catalogue by which almost all of the medical literature of the world was made accessible to medical research workers and writers.

To accomplish this work, however, Billings had first to create a great medical library. When he took charge of the Library of the Surgeon General's Office in 1864 it contained several thousand volumes. With his iron energy he at once went to work to increase this fine collection of books, for he had already then in view, the publication of the Index Catalogue. He continued collecting books from all the countries of the world for several years. The Library still possesses over 200 bound volumes of lists of second-hand books from American and foreign bookstores. From these lists he selected and ordered the works he wanted, especially those published before the year 1800 and the various editions of Greek, Roman and Arabic medical writers of which the Library possesses a fine collection.

In planning the Index Catalogue Billings was very cautious. In conjunction with his friend, Dr. Robert Fletcher, he studied out a plan of arrangement of such a work and in 1876 he published an experimental or specimen *volume* in which the authors and subjects were arranged in one continuous alphabet. This volume was known as the *specimen fasciculus* of the Catalogue of the National Medical Library, and was first published in 1876 and contains seventy-two pages. The *specimen fasciculus* was anti-dated by a catalogue of the Surgeon General's Office which was published by Dr. Billings some years before, but in an entirely different form from the Index Catalogue. The *specimen fasciculus* was submitted to the judgment of prominent European and American medical men who were capable of passing upon it, and it found general approval. When the first volume of the

Index Catalogue appeared in 1880 it followed the specimen volume throughout with only slight changes. It might be mentioned as a matter of interest, and of some significance if we are to believe that imitation is the sincerest form of flattery, that the Library of the Peabody Institute of the City of Baltimore in 1883 began the publication of a catalogue, which, in form, printing, and arrangement is very similar to that of Dr. Billings' work.

When Billings studied out the plan of the Index Catalogue he had no model to follow; he was a pioneer in this field. The previous undertakings of a similar kind by Gesner, Haller, Young, Watts and others were too small and inconsiderable to be of any value to him. As to technical questions Billings laid down and had printed for the use of the workers in the Library all the technical rules to the smallest details, and when he left the Library in 1895, those whom he had trained in the work and inspired with the same enthusiasm, followed these rules so that deviations from them were exceptional.

In the matter of classification Billings encountered many difficulties. Medicine was still an imperfect science; the causes of many diseases were still unknown, and bacteriology was then in its infancy. The fevers, which were then still imperfectly understood, appear in the First Series of the Catalogue under the title of Fever. Later, when more light had been thrown on these pathological conditions, the fevers were placed under their individual titles, as Malarial fever, Typhus fever, Typhoid fever, etc. Appendicitis, which produced such an enormous literature in the early days that the subject had to be continued in the Second Series also under the heading of Typhlitis in order to bring the whole subject in time before the medical profession, is now of minor importance, while Cancer with its immense literature, much of which is of little value, is still a problem to be solved.

While the medical literature was still limited during the last quarter of the 19th century it gradually increased in amount and has reached enormous proportions at the present time. It is, of course, clear that Billings' great bibliographical work has stimulated the general interest in medicine throughout the world, and that the enormous growth of medical literature was

certainly tremendously stimulated by the publication of the Index Catalogue.

Billings' work plays a great role in the progress of modern medicine in all countries, but by his labors and his personal influence he also stimulated the general interest in medicine in the United States. Besides the Library of the Surgeon General's Office there are now many great medical libraries in this country, in Chicago, Boston, New York and Baltimore, and a great number of smaller libraries in all the larger cities of the United States.

There was a time when American medicine lagged behind some of the more advanced countries of Europe. It is in large part due to Billings' great work that American medical science stands now in the front rank with the most advanced nations of the world.

From Drawing to Photography in Color

AN EXHIBITION ON THE HISTORY OF THE ART OF
MEDICAL BOOK ILLUSTRATION FROM THE 12TH
TO THE 20TH CENTURY ARRANGED AT THE
CENTENNIAL CELEBRATION OF THE ARMY
MEDICAL LIBRARY, NOVEMBER 16, 1936

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1. THE LEGEND

Illustrations are the best means of spreading knowledge. Often, several pages of text cannot so well describe a pathological specimen or a trick of surgical technique as a simple but well made drawing. No wonder that illustrations played an important role in the development of the medical and allied sciences.

In general, the history of medical book illustrations parallels the development of art, yet the particular subject and the special purpose of illustration distinguishes the art of medical book illustrators, who have to bring into harmony beauty with exactness and the fanciful with the scientific. Until the middle of the 19th century, illustrations in medical books were drawings transferred to wood, metal, or stone by the artistic method of

reproduction (engraving, etching). Since about 1850 these finer arts of illustration were gradually replaced by photography and the photomechanical processes.

A. *Era of hand drawing.* The love of pictures from time immemorial has been a passion. In the manuscripts of the Middle Ages the dullness and monotony of the caligraphy were relieved by the interspersed decorations and pictures in miniature. Scenes of surgical operations (1), illustrations showing the positions of the fetus in the uterus (2), and similar other figures occur in not a few medieval medical manuscripts. Schematic drawings of urine bottles showed the colors of urine and their prognostic importance in various diseases (3). Sketches of the human body were drawn to help the physician in bloodletting, to find the superficial veins the more easily, or to illustrate perhaps the influence of the stars upon the organs of the body (4).

B. *Era of wood-cut.* All medical science had come to us from the hands of the Arabs, to whom representation of the human figure was prohibited for religious reasons. This explains why the early printed medical books were not illustrated. Sometimes, however, the first page of the book was decorated with floral ornaments in the style of manuscripts (5). The early textbooks of anatomy were published without any human figure (6) on the pages.

To Italy fell the honor of making the book with engraved illustrations known to the world. The first illustrated book was printed in Rome in 1467, and contained designs taken from compositions of the famous Italian painter, Fra Angelico. In the engraved wood block, as in the printing type, it is a projection in the wood which, being inked and passed under a press, leaves on paper its lines in block. This method of reproduction was especially suitable for illustrations of herbals (7), or books related to medical astrology (8), in which the engraving consisted mostly of lines without any shadow. In many of these early incunabula the purity of design is remarkable in spite of the roughness of the engraving.

The Italian art of medical book illustration is well-represented by a wood-cut title-page of Mundino's anatomical work (9), representing a professor of anatomy lecturing upon the

intestines, together with his famulus who performs an anatomical dissection; in the background one sees rocks, hills and trees of the surrounding country. In Ketham's anatomical book the woodcuts, though intended for physicians, are only schematic representations of the human body (10). Even a few lines cut in wood, however, were better than no illustration at all, especially when the medical book was discussing such difficult questions as the qualities and grades of the various medicaments (11). After the impression of the book the illustrations were sometimes painted by hand. Such colored woodcuts occasionally occur in herbals (12) or other medical books, and represent the earliest attempt of "color-printing."

The French School of book illustration was in its hey day by the year 1500, but solely in miniature and ornamentation. The Books of Hours (13) was illustrated by Simon Vostre, and the figures were engraved in relief on metal so that the lines became very fine, the background stippled, and we find the border without scratches. But even French artists could not do justice to anatomical figures in the pre-Vesalian period (14). No wonder that in the first years of the 16th century, Hieronymus Brunschwig, a barber-surgeon in Strasbourg, and Jacobus Sylvius, a professor of medicine in Paris, spoke very derisively of medical and anatomical illustrations as being only an "eyeful" for woman folk. But though an enemy of pictures, Brunschwig himself needed woodcuts in his Hausapotheke (15) in order to have a better sale of his book.

Simply embellished with crude illustrations, the medical book assumed in the 16th century the grand airs of the Renaissance. Association of physicians with artists such as Leonardo Da Vinci, Dürer, etc., has been not without favorable influence upon the medical book-illustrating art. Dürer created a German art of woodcut (16), and he was imitated by many other engravers in Germany. How beautiful are the full-page woodcuts of Johann Wächtlin, engraver in Strasbourg, in the surgical textbook of Hans Von Gersdorff (17), or the almost miniature fine woodcuts of Heinrich Vogtherr, printer and engraver in Strasbourg, in the luxuriously decorated *Tacuin Sanitatis* (18). Vogtherr began to publish several anatomical books and fugitive

sheets around 1538-1539, but in these works his drawings are very crude and anatomically incorrect (19, 20).

The influence of graphic and plastic arts upon medical illustrations is best seen on the anatomical plates of Vesalius, founder of modern anatomical research (21). The feeling for formal beauty and artistically appealing illustrations becomes apparent in the work of Charles Estienne, but in his illustrations the dissected human body assumes various poses, which is distracting, and puts his figures at the level of the nudities drawn by Fontainebleu artists (22).

About the same time a great work of surgical classics was about to be published. Guido Guidi, professor of medicine in Paris (1542-1548), translated a collection of surgical books from Greek into Latin. Primatice, who was painter, engraver and architect to the French King, drew the illustrations to the text, but the book was published without his extremely fine drawings. The drawings together with the original manuscript of Guidi are now in the possession of the Bibliothèque Nationale, and bear testimony to the great advances of medical illustrative art made in the early part of the 16th century (23).

Books on medical subjects became more and more richly illustrated after 1550. The book of Lycosthenes (1518-1561) on prodigies and monsters is very remarkable because it contains several hundred simple woodcuts in the text (24). The herbals of this period were also richly illustrated and beautiful with many faithful and characteristic drawings (25). At the end of the 16th century the perfection of the art of wood engraving proved highly useful for representations from nature, and the ophthalmological work of Bartisch published in 1583 contains many good illustrations of eye diseases (26).

Towards the beginning of the 17th century, woodcut illustrations became very common in medical books as shown by a number of surgical works and anatomies published in this period. The surgery of Della Croce (27) or that of Fabricius Hildanus (28) contain many strikingly good woodcuts. During the 17th century, wood engraving was gradually replaced by line engraving in metal, but woodcuts remained as the chief means of illustration in the popular books sold at low prices (29, 30).

C. *Era of Line Engraving and Etching.* Line engraving in metal has been already used in 1477 for book illustration, but the early process of line engraving was defective. Line engraving in copper had established itself about 1550 to become popular in the 17th century. A line engraving is obtained from incised lines on a plate of metal, which may be iron, copper, silver, tin, steel, etc. It is mostly on copper on which an instrument called the burin traces the lines, which are filled with greasy ink. It is impossible to take a text from relief characters at the same time as an engraved plate, which explains why most of the illustrations in line engraving were usually on a separate sheet of paper in the medical books of the 17th century.

The famous work of Porta on human physiognomy published in 1586 is one of the earliest examples of copper plates in medical books (31). But the advantages of line engraving are best seen in books on pathology. Copper plates can reproduce more exactly than woodcuts the anatomical details. Therefore, this type of illustration was a great help for the development of pathological anatomy and surgical pathology (32). Even minute details of the structure of bloodvessels could be easily represented by the artist of the burin (33).

In the first half of the 17th century the art of illustration underwent a thorough change under the influence of the Plantins, the most important printing house at that time. The title of many medical books represents the portico of a cathedral (34). The bad "architectural" taste was wide-spread, and followed in all European countries. It was quite natural in this century to put a skeleton into the entrance of a cathedral on the title-page of a book dealing with plague (35)!

About the middle of the 17th century, the technic of copper engraving reached its perfection. Surgical scenes in the Dutch genre style (36) are as good representatives of this technic as the famous copper plate in a book of Bartholinus showing his first observation of the horse-shoe kidney (37). This was the era of the foundation of the first medical societies, and the first medical periodicals. These oldest medical journals used illustrations printed from copper plates (38), some of them showing various technical features of the art of copper engraving (39). Good anatomical design and good reproductive technic character-

izes the fundamental work of F. Mauriceau on obstetrics and gynecology (40). At the end of the 17th century, line engraving for medical book illustrations was firmly established (41), and even the popular fugitive sheets, the "extras" of those days, were illustrated with tolerable copper engravings (42) as shown by a broadside published on the occasion of the birth of the Augsburg quadruplets.

At the end of the 17th century there arose a divergence from scientific accuracy, and a tendency toward affectation. Browne's anatomical book, which may be taken as a connecting link between the 17th and 18th centuries, is a good example of perfect engraving technic and correct drawing, which however shows the decadence and coquetry of the French and English Courts. In a German and two English editions of his anatomical plates we find French and English noblemen, with their arm muscles dissected, sitting or standing on pedestals in beautiful gardens. It is not difficult to recognize in one of these figures Louis XIV himself (43), or the grand dames of the French Court, while it is rather interesting how the engraver of the German edition, by changing the scene of the accessory background, makes a "sailor's wife" from a "farmer's daughter" of the English edition of Browne's atlas (44, 45).

In the early part of the 18th century, more and more etchings are seen in the medical books. In etching as the name implies the line is obtained by corroding or "eating" the plate with some acid or mordant. The metal plate is covered with a thin layer of some resinous mixture, the design transferred to this etching-ground, the lines opened up with the etching-needle, and, thereafter, the mordant applied. This method allowed greater elasticity than engraving with a stiff cutting instrument, and it rendered medical illustrations more exact, and at the same time more artistic. Strikingly good etchings can be found in Morgagni's "Adversaria Anatomica" (46), while in Colombani's work on bloodletting the art of etching and the superimposed plates of the female figure are of a quite inferior quality (47). The illustrations in the surgical work of Garengot, French military surgeon, are elegant, and strike us with all the charm of a Watteau or of a Boucher (48).

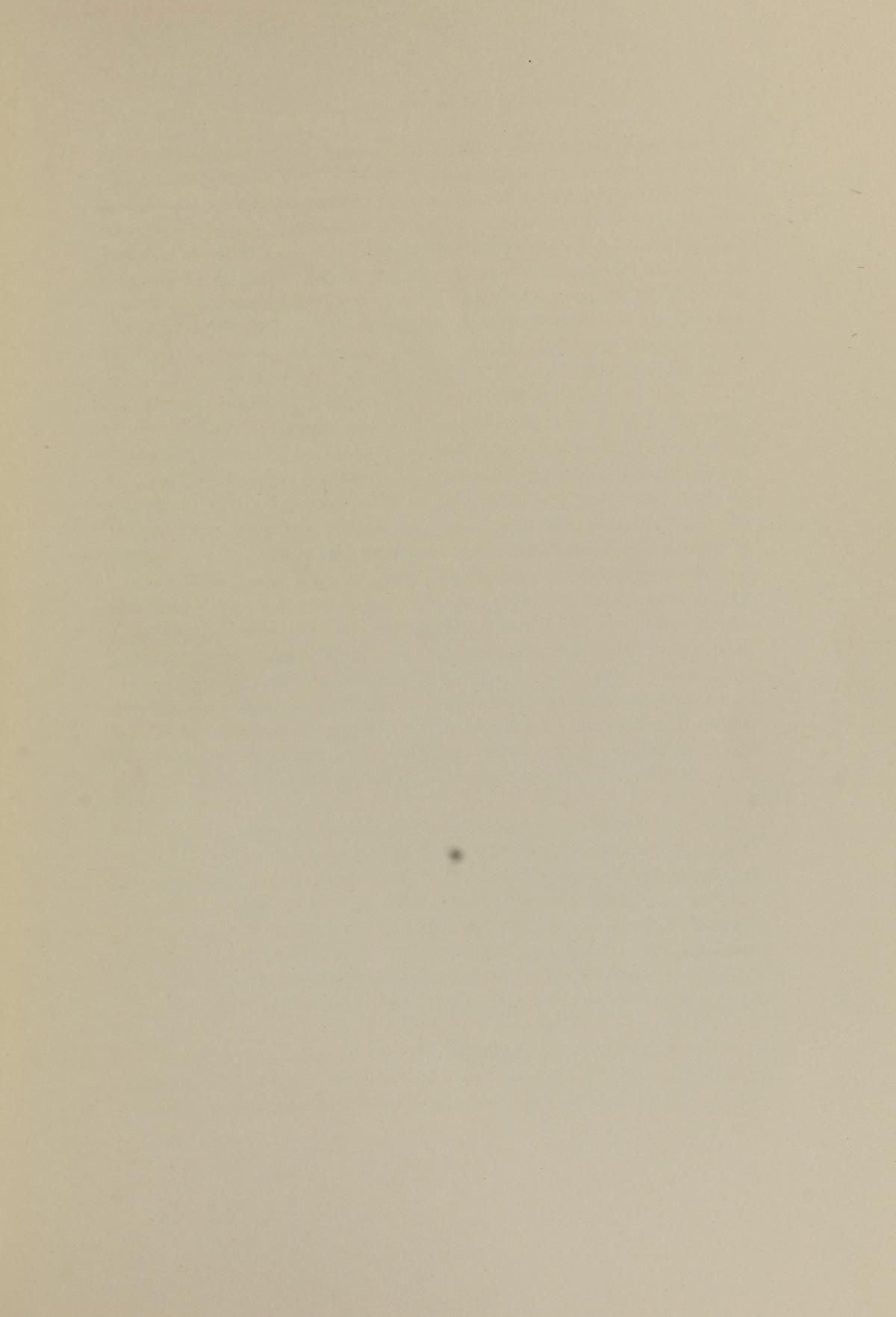
Since the end of the 17th century the size of anatomical

atlases was increasing. More and more large books in folios and elephant folios were published, and the large size of the paper gave good opportunity for the development of the art of medical book illustration. Bidloo's anatomy contains a beautiful portrait of Cowper, the editor, executed in mezzotint, which is a special tone-process of copper engraving (49). The pompous anatomical atlas of J. J. Manget was illustrated with the engravings of J. G. Seiller, of Schaffhausen (50). A manuscript and hand-drawn anatomical atlas of Fotherby shows how these folio atlases were planned (51).

While Berrettini's anatomical plates are still showing the Italian style, and the pose of his three skeletons reminds us of the three Graces (52), there began a movement among medical book illustrators and publishers of getting rid of the affectation in art. It was the merit of Albinus to make the first step towards anatomical accuracy without discarding elegance of design (53). He was soon followed by others. In Camper's valuable work on pathological anatomy the author himself took the pencil to draw the nearly life-size figures (54). The plates in the book of Mascagni show a fine and careful workmanship, and a faithful and truly masterful representation of the lymphatics (55).

Perfect anatomical drawing became the ideal of medical book illustration, which found able support in the Sandiforts, of Leyden (56). More and more details were left off from the figures, and, at the end of the 18th century Soemmering, professor in Cassel, Germany (57), Camper in his anthropological work, and Lavater (58, 59) reduced the human body to mere outlines. Outlines were also inserted as supplements to each finished plate of the large folio atlases in the beginning of the 19th century. Many of these atlases such as Caldani's anatomy (60), Hunter's anatomy of the pregnant uterus (61), or Tiedemann's atlas of the uterine nerves with figures of Prof. Roux, are perfect in their technic and exact in their anatomy (62).

At the end of the 18th century it became more and more common that the anatomical and surgical illustrations were made by physicians who had a talent for drawing. Some of the drawings of these 18th century medical artists are in the possession of the Army Medical Library (63,64), among them the excellent



water colors of Sir Charles Bell. The two great English surgeons, John and Charles Bell, made their own beautiful illustrations. John Bell, moreover, was not only a master of the pencil, but also a good engraver and etcher. Some of his engravings remind us of the style of an Edgar Allen Poe (65) (66) (67). The drawings of Charles Bell reveal a great artist, who could put as much passion into a simple illustration intended to introduce medical students into the art of anatomical dissection as the great masters of the renaissance into their paintings of the Crucifixion (68). In Cheyne's book, Charles Bell's water colors are reproduced by a perfect technic of etching (69).

D. *Era of color-prints.* Color-printing was first attempted by Le Bon, the inventor of the three-color process. His method was then used by Ladmiral in Holland, and by the family of Gautier L'Agoty in Paris. L'Agoty, in 1745, published an elephant folio atlas of anatomical illustrations. His figures are drawn in a light-spirited French style, which does not forget to put a ribbon into the coquettish girl's hair whose entire back is skinned to show the muscles. These large figures as well as the glossy appearance of the illustrations, which at the first glance have a great resemblance to oil paintings, not to mention a certain amount of piquance in the figures, were apt to fascinate the layman, but the eyes of a critical observer will soon discover the arrogance of the artist. The technic itself was not suited for delicacy or exactness (70,71). Others attempted to paint copper plates by hand as shown by the anatomical atlas of Cowper (72).

Probably the earliest attempt to use color-print for microscopical illustrations is found in Bleuland's work on the lymphatics published in 1874 (73). At this time, certain branches began to make great advances in medicine, such as ophthalmology and dermatology. Both sciences have a special demand for colored illustrations. Since the color-print was not yet perfected, Beer, ophthalmologist in Wien, published an atlas of copper plates colored by hand after the impression of the book (74).

At the beginning of the 19th century, the technic of color-printing improved, and it became possible to reproduce skin diseases in colored aquatints. These early dermatological atlases

such as that of Martens are full with still drawings in unnatural colors (75). In 1812, however, English technic of color-printing produced such excellent illustrations as found in Farre's book on the diseases of the liver (76). The aquatint plates in Bright's classical treatise of kidney diseases belong to the most beautiful illustrations ever to find their way into pathological anatomical books (77). In Hooper's "Morbid Anatomy of the Uterus" published in London, 1832, the aquatints are so perfect that they can hardly be distinguished from water-colors (78).

In France, and in Belgium color-print from copper plates became the commonest method of medical book-illustration. Many ophthalmological, dermatological and pathological works were luxuriously illustrated. Plates of the *Chalcographie Royale* in Bruxelles designed and reproduced by the students of this institute decorate the book of Alibert, French dermatologist (79). In Devergie's atlas of venereal diseases the figures were made after wax models so that they are somewhat stiff and their colors are unnatural (80). At the same time Germany produced Ammon's monumental ophthalmological work with many color-prints (81), but it was France where medical color-print reached its utmost perfection owing to the artistically minded Baillièrè publishing house.

The Baillièrès published Rayer's dermatological atlas full with excellent etchings in color (82), the pathological atlas of Auvert in which the color-prints were made from two copper plates, and finished by hand. The illustrations of this atlas were originally painted by Shikhtegolev, and engraved by Oudet, and others (83). With the same technic was produced Sichel's "Iconographie ophthalmologique" characterized by extreme beauty (84). The technic of color-print from several copper plates reached the peak of its development in Hermann Lebert's work on pathological anatomy published by the Baillièrès. This is the most important product of the illustrated medical literature (85). Since dermatology is a science of colors, works on skin diseases offered always the best opportunity to the masters of color-print of showing their craftsmanship as seen in Cazenave's atlas of skin diseases in which the illustrations bring color and design into harmony (86).

E. *Era of steel and lithography.* Meanwhile, from the end of the 18th century on, there developed a tendency to make medical illustrated books as cheap as possible. One solution of this economic problem was to replace copper by a cheaper metal in the engraver's shop. Though the illustrations were still mostly copper plates in the first decades of the 19th century, steel engraving and etching in illustration of medical books was firmly established (87). Ramsbotham's textbook of obstetrics has some 90 well-drawn illustrations reproduced from steel plates; the first of them showing a man and woman represents the early Victorian style characteristic for the time and for the country (88). Steel remained the chief metal of the illustrator until engraving was entirely replaced by the photomechanical processes in the nineties (89).

A new reproductive method, the lithography, became, however, the real solution of the economic problem of book illustration. Lithography was invented in 1798 by Senefelder at Munich. The center of early lithography was Germany, from where it was introduced into the United States in 1828. The first lithographic illustrations in black-white were tolerably good (90), especially if the drawings were made by an artist (91). The invention of lithography almost coincides with the highest development of color-print from copper plates, which was a great rival of the new reproductive process. Attempts were made, therefore, to have lithographic illustrations in colors, and soon chromolithography was invented (1837). The first products of chromolithography in Germany were below the average as seen in Behrend's atlas, which is full of distorted figures in lifeless colors (92). In the anatomical atlas of Sarlandière published in Philadelphia in 1835 the coloration was done partly by lithography, partly by hand (93).

The art of chromolithography was improved in France, which produced Cruveilhier's atlas of pathological anatomy, a monumental work, in which the different methods of medical illustration are excellently combined. The figures are natural, the colors good, and both the etching and the lithographic technic perfect (94). It was again to the credit of dermatologists to show the advantages of this new art of illustration. In Hebra's dermatological atlas chromolithography reached the highest grade of its

development. This famous product of the Vienna School of Dermatology has figures originally painted by Dr. A. Elfinger and Dr. Heitzmann, Hebra's assistants. All figures have an excellent design and a good color effect (95). Each plate in the atlas has a black-white outline. Many of our more recent dermatological atlases are but parodies of this giant of the book-illustrating art (96).

F. *Era of photography.* The further development of medical book illustration and the gradual transition from drawing to photography can be best followed by studying the plates in the volumes of Virchow's "Archives of Pathology" (97). In the fifties of the 19th century, these plates are still drawings reproduced by lithographic technic, black in the style of steel plates, or in color. In 1863 already we find photographs reproduced by lithography. About 1870 it became usual to mount original photographs on plates.

Photolithographic plates and original photographs make out Bourneville's Iconography of the Salpêtrière published in 1877 (98). Delafield's microscopical atlas shows all the advantages and disadvantages of microphotograms, which contain too much of the tissue structure (99). Yet the demand for exactness was so great at the end of the 19th century that nobody cared for the art of medical book illustration. Obstetrical atlases were produced with stereoscopic photographs (100), frozen sections of cadavers were reproduced by photography and photoengraving (101), clinical atlases were published full with nice heliogravures; and by photographs arranged in a series book-illustrators were able to imitate pathological types of gait as in Curschmann's clinical atlas (102).

In 1902, Bumm, German gynecologist and obstetrician, literally made a sensation with his beautiful textbook in which the very plastic black-white illustrations were drawn by the author himself, the drawings completed by the artist Albrecht Mayer, and reproduced by photoengraving (103). Bumm's style of medical book illustration was followed by other illustrators such as Benno Elkan in a textbook on anatomical dissections (104). Many illustrations related to microscopical anatomy are still hand-drawn (105), and our best atlas of tropical diseases con-

tains the water-colors of Fritz Skeel (106), but original drawings are nowadays less and less frequently met with.

The methods of reproduction have also changed completely. Woodcuts, copper plates with line engraving and etching together with the massive and expensive atlases have almost completely disappeared. Direct photography is employed for illustrating thousands of medical books. In the 20th century the methods of chromophotographic reproduction were developed. Jacobi's dermatological atlas contains many pictures of excellent mouldages from various clinics. These colored illustrations were made by "citechromy" (107). Another technic of chromophotography, the "Uvachrome" method, was invented by Dr. Traube and first used for the illustration of an atlas by Zumbusch (108). Our modern textbooks on surgery, gynecology, urology, etc., are full with more or less good photographs in color (109). In this century of photographic illustrations, artistically decorated medical books are considered as curiosities or de-luxe works, and there are very few medical authors (one of them Jayle, chief of the Gynecological Department of the Broca Hospital in Paris), who can say with pride that there is not a single photograph in their work (110).

Today, the fanciful is abandoned for the exact, the dream for the truth, the superfluous and the charming for the necessary and the dry. Only a new renaissance could resuscitate the now dead art of medical book illustration.

2. LIST OF EXHIBITED BOOKS AND ILLUSTRATIONS

1. Reproductions from medieval manuscripts as Ms. Sloane 6 of the British Museum, etc.
2. Position of fetus in utero; reproduction in color from No. 190 of the Thotts collection.
3. 14. century leechbook; original in Army Medical Library.
4. "Bloodletting man"; 15. cent. parchment leave in the Library.
5. *FERRARIO, Giovanni Matteo (De Gradibus)*. Practica. Milano, 1472.
6. *MONDINO de Luzzi*. Anothomia. Padua, 1484.
7. *MACER Floridus*. The virtutibus herbarum. Paris, 1490.
8. *ABU MASHAR*. Flores astrologiae. Venezia, ca. 1500.
9. *MONDINO de Luzzi*. Anothomia. Leipzig, ca. 1493.
10. *KETHAM, Joannes*. Fasciculus medicinae. Venezia, 1495.
11. *MAIOLUS, Laurentius*. De gradibus medicinarum. Venezia, 1497.
12. Herbolarium. Venezia, 1499.
13. Heures à l'usage de Rome. Paris, 1501.

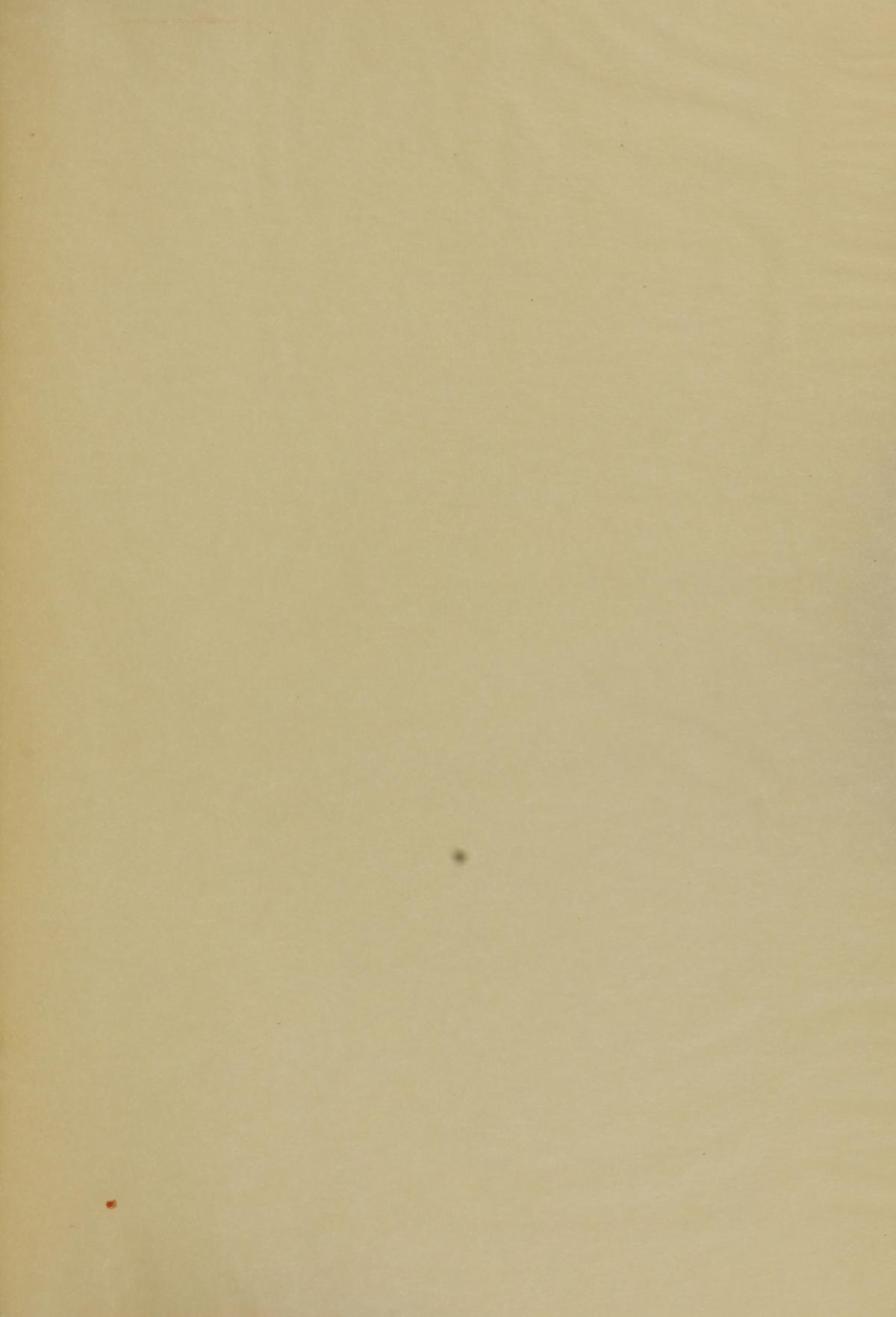
14. *DESPARS, Jacques*. Summula super remediis ex Mesue libris. Lyon, ca. 1500.
15. *BRUNSCHWIG, Hieronymus*. Haussapoteck. Augsburg, 1545.
16. *DURER, Albrecht*. Vier Bücher von menschlicher Proportion. Nürnberg, 1528.
17. *GERSSDORF, Hans*. Feldtbuch der Wundartzny. Strasbourg, 1517.
18. *ABUL HASAN AL MUCHTAR BEN BOTLAN*. Schachtaffeln der Gesundheit. Strasbourg, 1533.
19. (*VOGTHERR, Heinrich*). Secretbuchlin des Harns. Strasbourg, 1538.
20. (*VOGTHERR, Heinrich*). Anothomi eynes auffgethonen augs. Strasbourg, 1539.
21. *HOLL, M. & SUDHOFF, K.* Des Andreas Vesalius sechs anatomische Tafeln vom Jahre 1538 in Lichtdruck. Leipzig, 1920.
22. *ESTIENNE, Charles*. De dissectione partium corporis humani. Paris, 1545.
23. *BIBLIOTHEQUE NATIONALE*. Collection de chirurgiens grecs avec des-sins attribués au Primatice. Reproduction du manuscrit latin 6866. Paris 19. .
24. *LYCOSTHENES, Conrad*. Prodigiorum ac ostentorum chronicon. Basel, 1557.
25. *MATTHIOLUS, Petrus Andreas*. Commentarii in Dioscoridis de medica materia. Venezia, 1558.
26. *BARTISCH, Georg*. Augendienst Dresden, 1583. (First edition.)
27. *DELLA CROCE, Giovanni Andrea*. Chirurgiae universalis opus absolutum. Venezia, 1596.
28. *FABRICIUS HILDANUS*. Wundartzney. Hanaw, 1652.
29. 30. Two 17th century books: De nuce vomica and Metoposcopia. (Hier. *Cardanus*.)
31. *PORTA, Gimbattista*. De humana physiognomia. Viscus Aquensis, 1586.
32. *BAUHIN, Caspar*. De hermaphroditorum monstrosorumque partum natura. Frankfurt, 1614.
33. A 17th century book on bloodletting. (*Castellani*.)
34. *CABRIOLUS, B.* Ontleeding des menschelycken Lichaems. Amsterdam, 1633.
35. *BARBATUS, Bartolomeo*. Il contagio di Padova. Rovigo, 1640.
36. *BEVERWYCKS, Joh. van*. Schat der gesontheyt. Amsterdam, 1660.
37. *BARTHOLIN, Thomas*. Historiarum anatomicarum rariorum centuriae. Amsterdam, 1654.
38. *ZODIACUS* medico-gallicus. Transl. from French. Geneva, 1680.
39. *SCULTETUS, Johannes*. Armamentarium chirurgicum. Leyden, 1693.
40. *MAURICEAU, François*. Traité des maladies des femmes. Paris, 1683.
41. *BLANKART, Stephen*. Collectanea medico-physica. Amsterdam, 1680-1688.
42. *Warhafftiger Bericht* (etc.). Augsburg, J. Koppmayer, 1683.
43. 44. 45. *BROWNE, J.* A complete treatise of the muscles (etc.). London, 1681; also another edition. London, 1683; also German edition, Berlin, 1704.
46. *MORGAGNI, Giambattista*. Adversaria anatomica omnia. Patavii, 1719.
47. *COLOMBANI, G.* Il tutto ristretto (etc.). Venezia, 1724.

48. *GARENGEOT, R. J. C. de.* Chirurgia practica. Berlin, 1733.
49. *COWPER, William.* The anatomy of human bodies. Oxford, 1697.
50. *MANGET, J. J.* Theatrum anatomicum. Geneva, 1717.
51. Original manuscript by *FOTHERBY* with drawings, 1729.
52. *BERRETTINI, Pietro.* Tabulae anatomicae. Roma, 1741.
53. *ALBINUS, B. S.* Icones ossium foetus humani. Leyden, 1737.
54. *CAMPER, Pieter.* Demonstrationum anatomico-patholicarum liber (etc.). Amsterdam, 1760.
55. *MASCAGNI, Paolo.* Vasorum lymphaticorum corporis humani historia (etc.). Siena, 1787.
56. *SANDIFORT, Eduard.* Museum anatomicum Lugduno-Bataviae descriptum (etc.). Leyden, 1793.
57. *SOEMMERING, Samuel Th.* Icones embryonum humanorum. Frankfort, 1799.
58. *CAMPER, Pieter.* Redevoeringen (etc.). Utrecht, 1792.
59. *LAVATER, J. H.* Elémens anatomiques (etc.). Basel, 1797.
60. *CALDANI, L. M. A.* Icones anatomicae. Venezia, 1801-1813.
61. *HUNTER, William.* Anatomia uteri humani gravidis. Impression from the original plates. London, 1815.
62. *TIEDEMAN, Fredrich.* Tabulae nervorum uteri. Heidelberg, 1822.
63. *COXE.* Original anatomical drawings. End of 18th century.
64. *MAY.* Original anatomical drawings. 1786.
65. *BELL, John.* Engravings explaining the anatomy of the bones (etc.). Edinburgh, 1794.
66. 67. *BELL, John.* The principles of surgery. Edinburgh & London, 1801-1808.
68. *BELL, Charles.* A system of dissections. Edinburgh, 1799-1801.
69. *CHEYNE, John.* Essays on the diseases of children. Edinburgh, 1801-1808.
70. *GAUTIER D'AGOTY, J. F.* Essais d'anatomie (etc.). Paris, 1745.
71. *GAUTIER D'AGOTY, J. F.* Cours complète d'anatomie. Nancy, 1773.
72. *COWPER, William.* Anatomia corporum humanorum. Utrecht, 1750.
73. *BLEULAND, Jan.* Observationes anatomico-medicae. Leyden, 1785.
74. *BEER, Joseph Georg.* Praktische Beobachtungen über den grauen Staar. Wien, 1791.
75. *MARTENS, F. H. & TILESIIUS, W. T.* Icones symptomatum venerei morbi. Leipzig, 1804.
76. *FARRE, J. Richard.* The morbid anatomy of the liver. London, 1812.
77. *BRIGHT, Richard.* Reports of medical cases. London, 1827.
78. *HOOPER, Robert H.* The morbid anatomy of the human uterus. London, 1832.
79. *ALIBERT, Jean-Louis.* Description des maladies de la peau. Bruxelles, 1825.
80. *DEVERGIE, Marie-Nicolas.* Clinique de la maladie syphilitique. Paris, 1826.
81. *AMMON, F. August von.* Krankheiten und Bildungsfehler des menschlichen Auges. Berlin, 1838.
82. *RAYER, P. F. O.* Traité . . . des maladies de la peau. Paris, 1835.

83. *AUVERT, Alexander.* Selecta praxis medico-chirurgicae, Paris, 1851.
84. *SICHEL, Julius.* Iconographie ophthalmologique. Paris, 1852-1859.
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89. *BELL, Charles.* The anatomy and philosophy of expression. Lond., 1886.
90. 91. Two 19th century books with black-white lithographies.
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93. *SARLANDIERE.* Systematized anatomy. New York, 1835.
94. *CRUVEILHIER, L. J. B.* Anatomie pathologique du corps humain. Paris, 1829-1842.
95. *HEBRA, F., ELFINGER, A. & HEITZMANN, C.* Atlas der Hautkrankheiten. Wien, 1856-76.
96. *KOPP, Karl.* Atlas der Hautkrankheiten. Munich, 1893.
97. Virchow's Archiv für pathologische Anatomie. Exhibited volumes 1858, 1860, 1863, 1864, 1870.
98. *BOURNEVILLE, D. M. & REGNARD, P.* Iconographie photographique de la Salpêtrière. Paris, 1876-1880.
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100. *PONFICK, Emil.* Stereoscopischer medicinischer Atlas. Leipzig, 1898.
101. *MACEWEN, William.* Atlas of head sections. Glasgow, 1893.
102. *CURSCHMANN, H.* Klinische Abbildungen. Berlin, 1894.
103. *BUMM, Ernst.* Grundriss zum Studium der Geburtshülfe. Würzburg, 1902.
104. *FISCHER, Bernhard.* Der Sektionskurs. Wiesbaden, 1919.
105. Virchow's Archiv. 1910.
106. *BAERMANN, G. & ECKERSDORFF, O.* Atlas tropischer Darmkrankheiten. Leipzig, 1913.
107. *JACOBI, Eduard.* Atlas der Hautkrankheiten. Berlin & Wien, 1904.
108. *ZUMBUSCH, Leo.* Atlas der Syphilis. Leipzig, 1922.
109. Modern American, English, French and German textbooks of medicine and surgery with different methods of illustration.
110. *JAYLE, F.* La gynécologie. Paris, Masson & cie, 1919.

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- b) *GOLDSCHMID, E.* Entwicklung und Bibliographie der pathologisch-anatomischen Abbildung. Leipzig, 1925.
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